

ADVERTISING
AND ITS
MENTAL LAWS
ADAMS

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ADVERTISING AND ITS MENTAL
LAWS



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TORONTO

ADVERTISING AND ITS MENTAL LAWS

BY

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New York

THE MACMILLAN COMPANY

1920

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Set up and electrotyped. Published October, 1916.

**Norwood Press
J. S. Cushing Co. — Berwick & Smith Co.
Norwood, Mass., U.S.A.**

PREFACE

THIS book is intended for students of the Psychology of Advertising, though much of the material which is contained in it will undoubtedly be of benefit to the man who is in the practical side of advertising. The behavioristic standpoint has been adhered to throughout, for the student of advertising is interested primarily in what mind does, not in what it is.

I have endeavored to accomplish three things in the development of the work. First, to present in simple language the basic facts and principles of psychology which are related to advertising and point out the application of the principles. Secondly, I have endeavored to reduce the complexity of a printed advertisement to its elements and to show with mathematical exactness the effect of the various elements. This has been done in large measure by devising experiments to test the effect of one factor in isolation, then the effect of a second, a third, etc. The book, consequently, is an endeavor to put the Psychology of Advertising on a quantitative basis, a strictly scientific basis. Thirdly, the results of the experiments which have been carried on in the laboratory have been compared with the results of actual advertising campaigns in which similar

problems have been involved and it has been found that the relationship between the business test and the theoretical test is strikingly close.

In order to produce effective advertising, it is necessary that the advertisement lead to some action. To lead to action, it must arrest and hold the attention of the reader, it must create a favorable impression, and it must usually be remembered. The majority of advertisements which appear are very good from the first standpoint, good from the second and third, but only fair for inciting the reader of the advertisement to action. Consequently, I have endeavored to analyze action with some thoroughness, showing why so many advertisements are lacking in effectiveness, why people do not act in response to them, and giving in some detail devices which will improve the pulling power of an advertisement.

The book could never have been written without the aid of many persons. I am indebted to the published works of Gale, Hollingworth, Strong, Scott and Starch for much of my material. My thanks are also due to *Printer's Ink*, *Advertising and Selling*, *Judicious Advertising*, and *System* for permission to quote from their pages. The material on the adequacy of the order of merit experiments as applied to advertising is taken with few changes from an article by the author which appeared in the *Psychological Review* for September, 1915. Two memory experiments, one on the relative efficiency of size and frequency in forming associations, the other on the effectiveness of duplication and variation in advertising, are taken substantially unchanged from articles by the author in the *Journal of Philosophy*,

Psychology, and Scientific Methods, Vol. 12, pages 477 ff. and Vol. 13, pages 141 ff. For the many experiments which are quoted in the book, acknowledgments are due to the following students:—

The Attention Value of Different Parts of the Page, William A. Hart, Miss McNamara, Mr. Ellis, Mr. Barnard, and Mr. Baum.

The Attention Value of Size, Howard Marsh, Frank Willard.

The Attention Value of Pictures, Chester Lang and Samuel Rosenfield.

Association Experiments, Samuel Rosenfield.

Memory Experiments, Kenneth Wesley, Hugo Wagenseil, and H. Kirk White.

For the experiment on the effects of the surrounding media, Miss Isabel Drummond.

For reading the manuscript and making many helpful suggestions, I owe much to Professor Pillsbury, Miss Sara Whedon, Miss Anna H. Adams, and my wife.

HENRY F. ADAMS.

ANN ARBOR, MICH.,
July, 1916.

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ADVERTISING AND ITS MENTAL LAWS

CHAPTER I

DEFINITIONS AND FUNCTIONS OF ADVERTISING

THAT it is very difficult to state clearly and definitely just what constitutes advertising, is evidenced by the fact that many of the advertising men who have written books upon the subject have refrained from any attempt at definition. A moment's consideration will show that any sharp line of division between advertising and publicity is practically impossible. The individual or company spending many thousands of dollars for the back cover of a magazine, and printing thereupon a statement concerning any commodity, is making use of advertising. Likewise, the one who sends out hand-bills, letters, and the like, is an advertiser. He is at least making himself and his commodity known to the public.

Can it be said also, that the preacher whose sermon appears in the daily newspaper, the doctor whose brilliant and daring operation is featured in the daily press, the author whose story appears in a magazine, the writer whose volume is mentioned in the book notices, — may it be said that these men are advertisers too? Each is at least making himself and his commodity known to the public. From one standpoint, each is an advertiser.

But there are two differences which must be taken into account. In the first case, the man pays for his advertisement; in the second, he does not. Secondly, because the individual pays for his space, he may control what goes into it, making statements as favorable to himself and his commodity as he cares to. The advertiser of the second type, however, is very largely helpless in determining what shall be said of him or of his commodity.

The term advertising will be used throughout the work to mean the variety which is paid for. Since this is the only sort which can be controlled by the advertiser, it is the only kind to which he can apply the various laws for making it more efficient.

The following are a few of the definitions which have been given to advertising by men who have written upon the subject.¹

Wadsworth² gives a definition to the effect that advertising consists of any effort which has for its purpose the obtaining of distribution or demand for a commodity without personal solicitation.

Tipper and Hotchkiss³ say that "advertising represents that part of the process of selling which can be accomplished by appealing to consumers or customers in mass, no matter what means is taken to do so."

Mahin⁴ states that "the finished work of an advertiser is not a material substance which can be seen with the eyes and touched with the hands, but a definite positive impression in the minds of possible buyers which is reflected in the voluntary purchase of the goods which the advertiser wishes to sell."

The first definition would include both the free and the paid kinds of advertising, as would the second also.

¹ The reader is referred to *Printer's Ink* for recent years. A large number of definitions of advertising are given.

² Wadsworth, "Principles and Practice of Advertising," page xiv.

³ Tipper and Hotchkiss, "Advertising," page 22.

⁴ Mahin, "Advertising—Selling the Consumer," page 13.

The third, by its more explicit wording, could logically be applied to all forms of paid advertising, but not all of the free. The main criticism of these definitions is that they do not satisfactorily mark off commercial advertising from free publicity. It is worthy of note that all three definitions grant very frankly that the advertiser has something to sell. Contrast with these the definitions given by Richardson.¹

1. "Publicity work conducted on educational lines, aiming to make the name and merit of a commodity familiar to buyers throughout the advertiser's get-at-able territory, or, having made the selling points known, seeking to keep them fresh in the buyer's mind.

2. "Printed salesmanship, telling the story of the goods in a dignified, convincing, yet interesting manner, in words easily understood but containing no suspicion of exaggeration, or in pictures that give faithful illustrations of the goods.

3. "The gradual process of applying layer after layer of facts relative to quality and value to the public mind, so that, step by step, the impression of goodness is strengthened and a confidence wall built round the product to the exclusion of competing brands."

The last three definitions represent the attitude of the advertiser of five to five thousand years ago, emphasizing as they do the publicity side of advertising. Informing the public seemed to be the essential thing. There was, if the older definitions are to be taken literally, no desire on the part of the advertiser to sell his commodity. He was a philanthropist pure and simple, spending hundreds of millions of dollars annually to educate the public concerning the various lines of industrial endeavor.

The business man is not ordinarily so generous. He is spending his money on advertisements because he is fully convinced that they will give him a low selling cost and

¹ Richardson, "The Power of Advertising," pages 19-20.

increase his profits. No matter what his line is, he is trying to do business and more business. He is trying to get somebody to do something, and that something is the purchasing of a definite commodity. The commodity may be an actual article, such as a package of breakfast food or a piano; it may be services, as would be the case with a boxing instructor, a detective, or the head of a correspondence school; it may be protection for the individual, as in the case of insurance. Whatever form the commodity takes, its purchase will directly or indirectly benefit the individual who furnishes the commodity. The fact that the advertiser is offering information to bring about action on the part of the public must be taken into account in framing any definition.

Bearing these facts in mind, commercial advertising may be defined as the endeavor of an individual or of a group to persuade others, without personal solicitation and by means of a paid medium, to perform some specific act which will result in pecuniary advantage to the individual or group which is making the endeavor.

The phrase "without personal solicitation" is inserted to differentiate advertising from salesmanship. By salesmanship will be meant, throughout the book, the actual personal relationship between the buyer and the seller. The salesman tries by word of mouth or by manner to influence the customer to buy. Whenever advertising is spoken of, it will indicate that the prospective buyer and seller are not together. The suggestion to buy comes in an impersonal way, usually in the form of a written or printed message.

The Function of Advertising. — The purpose of advertising is to bring trade which shall be profitable to the advertiser. Advertising has in many instances supplanted personal salesmanship, and in other cases is a great aid to it. The business man is going to sell his goods in the most economical way that he can; and if

salesmanship represented the greatest economy, that is the method he would employ. Since there is such a growing tendency to use advertising, either as a sole means or as a means to help salesmanship, it must be a more efficient method per dollar of expenditure. Few definite data are procurable which will prove this, but several general considerations point in that direction.

A salesman can, on the average, sell to but one customer at a time, whereas an advertisement can influence thousands of individuals simultaneously.

An advertisement will reach and possibly influence many individuals whom the salesman could not reach.

The advertisement may repeat its appeal time after time to the same person, while the salesman must say his say and then leave.

The salesman is a source of constant expense to the company, while the advertisement is paid for once and for all.

The salesman is liable to all the illnesses that are prevalent in his territory, cannot work on Sundays and holidays, whereas the advertisement never gets sick and can work 365 days in the year.

A few definite figures relative to the efficiency of advertising are obtainable and will be quoted. J. G. Frederick¹ says, "The very best proof in the land that advertising decreases selling cost is contained in the situation of Hart, Schaffner & Marx, the famous clothing house, as compared with other clothing houses. Hart, Schaffner & Marx are authoritatively reputed to do an annual volume of business of about \$15,000,000. . . . Good advertising has been their keynote all this time; and today their salesmen (who are on salary, not on commission) talk little else but advertising to dealers. In magazine advertising alone this spring and last fall Hart, Schaffner & Marx spent \$85,000. This figure is not a guess, it is checked up from the magazines. One

¹ *Printer's Ink*, August 4, 1910, page 3.

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hundred and twenty-five thousand dollars would probably cover the total advertising expenditure, newspaper advertising and all.

"Now let us measure up selling cost. For the sales department expense (everything but advertising), I learn from inside sources, Hart, Schaffner & Marx spend only $2\frac{1}{2}$ to 3 per cent. See how this measures up beside other clothing houses:

	MAGAZINE ADVERTISING 1909-1910	SELLING COST
Hart, Schaffner & Marx . . .	\$85,000	$2\frac{1}{2}$ -3 %
B. Kuppenheimer & Co. . . .	49,000	4 %
Samuel W. Peck & Co. . . .	29,000	6 %
Alfred Benjamin	24,000	7 % ¹

"Here is one of the most powerful object lessons ever tabulated regarding the relation of advertising to sales policies. In almost perfect proportion to the expenditure for advertising, the selling cost has decreased and the volume of sales increased. Those clothing manufacturers named above are all advertisers—there is an endless number of other clothing manufacturers

¹ To determine just what effect advertising has had upon the selling cost, it is well to reduce both columns of figures to ratios, for in this way the relations may be seen at a glance.

	ADVERTISING	SELLING COST
Hart, Schaffner & Marx . . .	3.54	1.00
B. Kuppenheimer & Co. . . .	2.04	1.60
Samuel W. Peck & Co. . . .	1.21	2.40
Alfred Benjamin	1.00	2.80

These ratios show that the selling cost varies inversely as the 1.2 root of the amount spent for advertising. This figure is approximate only, but throughout the book the endeavor will be made to give mathematical expression to the different relations found to exist.

whose names are little known to consumers, and whose selling cost ranges all the way from 6 to 9 per cent. They are getting neither the reduced cost of manufacture which comes with the larger volume of sales nor the decreased selling cost which comes with trademark and consumer advertising."

Another sort of indication that advertising pays was given by an investigation conducted by the *Chicago Tribune*. The test¹ is described as follows. Four questions were asked:

1. What are your favorite brands of food and why do you buy them?
2. How was your attention first called to each?
3. What has your experience been with each?
4. How much are you influenced by the labels and by the known purity of food products?

Replies from those who responded in this contest were classified into 37 broad divisions of food products, ranging alphabetically from baking powder to vinegar. The total votes for all brands were 30,936. This does not mean that this was the number of separate replies received, but that this was the total number of votes cast for all brands.

The reason for purchasing each brand was assigned in nearly every case. These reasons were classified in three divisions, as follows:

Influenced by retailers, 16,527, or 55 per cent of the total.

Influenced by advertising, 11,372, or 36 per cent of the total.

Influenced by friends, 1,889, or 6 per cent of the total.²

¹ *Judicious Advertising*, December, 1913, page 63.

² It is fair to assume that 36 per cent of the friends and a certain unknown percentage of the retailers were influenced by advertising. Its direct influence would be 36 per cent, its indirect influence would be an unknown quantity more, possibly enough to raise the total to 50 per cent or above.

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Those food products in which the influence of advertising was most apparent are, in general, the products that are most widely advertised. These products, ranked in the order in which the influence of advertising was admitted to be the strongest, were as follows:

Cocoa and chocolate	61 per cent
Cereals	60 per cent
Beverages	48 per cent
Flavoring extracts	46 per cent
Meat products	45 per cent
Milk and baking powder, tied	43 per cent
Sauces and relishes	42 per cent

Still a different type of evidence is presented by the following incident, which is related by F. W. Ellsworth. He says:¹ "There is abundant evidence that bank advertising of a general nature does increase deposits. Here is an example which is reasonably conclusive. The city of Plainfield, N.J., in 1902, had a population of 15,000, with three banks, whose combined deposits were \$2,000,000. A new bank was started whose policy was radically different from that of the older banks, in that it believed thoroughly in advertising. Its success, which was almost immediate, compelled the other banks to abandon their old policy of silence, and since 1903 all the banks in Plainfield have been consistent and continuous advertisers. The population of Plainfield in the ten years had increased 5000, or 25 per cent, while the deposits in the banks have increased to over \$10,000,000, or more than 500 per cent. The vice-president of one of the banks in that city tells me that in his opinion 'this is conclusive evidence of the great value of good bank publicity.'

"A city in southern Michigan, in 1902, had a population of about 10,000, with three banks, whose total deposits were about \$3,500,000. Practically no adver-

¹ *Judicious Advertising*, November, 1913, page 57.

tising was done by any of these institutions. A new bank was established in 1903, the management of which believed in advertising, and in less than nine years the new institution has accumulated deposits larger than the combined deposits of the other three banks ten years ago. In the meantime the other banks have been forced to advertise more than they did, and they too have grown, so that the combined deposits of the four banks are today about \$11,000,000, a gain of over 200 per cent, although the population of the town increased during the same time less than 35 per cent. The cashier of one of the banks says: 'Needless to say, my opinion is that advertising is a good thing, as you observe that this bank has grown from a deposit account of nothing to \$3,700,000 in eight and a half years.'"

Another argument in favor of advertising is to be found in the following clipping.¹ "It is interesting to analyze the failures which occurred during the past year. There were 3280 manufacturing failures — 250 more than in 1909, but 500 less than in 1907. The greatest number of failures were in clothing and millinery lines — largely women's clothes, which in the finished shape are less advertised than any other large division of merchandise. The industry suffering the next greatest number of failures was the lumber industry — another unadvertised class; and the next, the millers. Flour advertising is done by practically two — recently three — concerns. Machinery and tool makers, glass, earthenware, and brickmakers, and printers and engravers suffered more heavily than any other class; and all of them are practically unadvertised."

A still different type of argument is presented in another clipping which shows the effect of discontinuing advertising after a successful business has been built up. The article² reads as follows: "A short time

¹ *Printer's Ink*, January 19, 1911, page 31.

² *Ibid.*, March 9, 1910.

after the death of Charles Vogeler, of St. Jacob's Oil fame, his widow called in a banker to look over affairs. The banker, representing ideas of a former commercial epoch, toiled microscopically through the books, and was outraged at the items spent for advertising. He would mend that! See how much money might have been saved if there had been no advertising! He figured the publicity expenditures as useless expense, and he attempted to make the widow see it that way.

"The widow had a lot of faith left in her husband, for she herself had seen millions of bottles sent away to uncounted buyers. Yet there were the awful figures squandered just for space in magazines and on billboards, and, besides, wasn't a banker an all-wise man whom one shouldn't dispute?

"So it happened that St. Jacob's Oil came less and less frequently to the attention of the public. As the contracts ran out, they were not renewed and before long St. Jacob's Oil, which had been known to nearly every man, woman, and child in America — yes, and the world — through the tremendous force of advertising, quietly effaced itself from American landscapes and from the magazines and the newspapers. Within a year or so all advertising had practically ceased.

"St. Jacob's Oil had a splendid distribution. It could be got anywhere. The banker had said it would sell anyhow, because everybody had come to know it so well. But . . . as the advertising had ceased to bother the expense columns of the ledgers, the demand slackened. Complaints reached headquarters from dealers that St. Jacob's wasn't going as it had. And so within another two or three years the golden stream of orders had shrunk to proportions that would have driven its former proprietor frantic. St. Jacob's had become a back number."

The incidents which have been quoted showing the

effect of advertising are, to say the least, striking. They are written convincingly and forcefully. They may represent the exact and absolute truth. But, before accepting them blindly, two possibilities must be considered.

In the first place, six isolated instances, even though they agree perfectly, will never warrant the postulation of a general law. A tendency may be indicated, and the piling up of additional cases will strengthen the tendency.

In the second place, it must be remembered that all of the incidents quoted were taken from technical advertising magazines, the attitude of which is frankly favorable to advertising. Not that the facts contained in such magazines are not absolutely trustworthy, but that facts favorable to advertising are much more likely to find a resting place on their pages than those which are unfavorable.

In view of these considerations, it will be worth while to give some actual figures relative to the efficiency of advertisements. The figures are quoted from Shryer and deal with mail order propositions, which possibly show somewhat different tendencies from the advertisements of more general commodities. Practically the only advertising from which exact records can be obtained, however, is of the mail order variety. The following figures, then, must be taken as applying simply to the mail order sort. While they may apply with equal force to the other varieties, there is no way of being sure of it.

Shryer¹ says as follows:—“Although I am what many would call a mail order advertiser, I am more interested in the general principles that underlie all advertising than I am in a discussion of particular mail order procedure. My main concern is to attempt an exposition of several general principles which will be

¹ *Advertising and Selling*, February, 1913, page 24.

found as practical for the general advertiser as for any other.

"An illustration of mail order reasoning that has a highly suggestive value for any advertiser occurs to me in connection with the point just made regarding the small percentage of possible prospects. It may serve to throw a little light on the great waste inseparable from any campaign. . . .

"The average cost for inquiries may range from 25 cents to \$1. Above \$1 apiece, inquiries are unusually high. Below 25 cents each, inquiries are very low. Ten cents apiece for inquiries may be considered as *bed rock*. An average percentage of sales is somewhere between 10 per cent and 15 per cent. The Kalamazoo stove in its palmy days claimed to sell one out of three. The usual average is nearer 10 per cent than even 25 per cent.

"Let us assume a circulation of 100,000 at \$100 a page — an honest rate. Let us use a page of the strongest copy, yielding inquiries at 10 cents. Let us assume a selling average of 20 per cent, just double the ordinary. We therefore secure 1000 inquiries. We therefore sell 200 out of the 100,000, or one fifth of one per cent.

"In assuming these percentages I have taken an absurdly high sales percentage and a ridiculously low selling cost. A mail order man, with a good article, buying inquiries at 10 cents and selling one out of five is the possessor of a proposition rich beyond the dreams of mail order avarice. It is needless to say that few develop any such gold mines. Most of us are content to pay \$1 apiece for inquiries and sell ten per cent of them. This means selling just ten out of a circulation of 100,000.

"Under our most favorable assumption, we are buying 99,800 waste. Under the average actual conditions we are buying 99,990.

"These figures are assumed figures, but they represent the outside limits of actual average results. Whatever your proposition, there is an absolute limit to the number of persons out of every 100,000 circulation that you can move to purchase through the most skillful copy. As soon as you realize this and determine just how many you are able to sell under the most favorable circumstances, you begin to appreciate the wisdom of thoughtful analysis."

Turning now to the results of advertising campaigns which have been carried on, further data are obtained. The results of a subscription campaign carried on by a popular magazine costing \$1 per year, are given.¹ Both magazines and newspapers were employed as mediums. Twenty-one insertions in magazines and forty-four in newspapers, costing a total of \$3,147.94, resulted in 2855 subscribers at \$1 each. The loss for this campaign was \$292.94.

The results of another campaign to sell a combination of merchandise costing slightly less than \$30, is given below. Advertisements inserted in 18 magazines gave the following results:²

Cost of space	\$ 7,533.02
Number of inquiries	20,935.
Cost per inquiry	0.35
Per cent orders to inquiries	6.00
Orders	1,270

Shryer says:³ "In order to make a profit, it was necessary to secure inquiries at 40 cents each, and to develop into orders at least 6 per cent of the inquiries at this cost. It may be seen at a glance how few of the publications tested were profitable. In some cases inquiries were secured at an average cost of less than 40 cents,

¹ Shryer, "Analytical Advertising," page 82 ff.

² *Ibid.*, page 137 ff.

³ *Ibid.*, page 146.

when a somewhat lower percentage of orders would yield a profit. . . . The few profitable mediums carried the whole campaign."

The same campaign as carried on in the 46 newspapers shows the following returns:

Cost of space	\$3420.08
Inquiries	5678.
Cost per inquiry . . . . .	.60
Per cent of sales to inquiries	4.50
Sales	258.

Two other sets of figures will be quoted from Shryer.¹ In these he gives summarized tables of the returns from his own advertising of the American Collection Service. The results are given for different sizes of advertisements:

SIZE OF AD.	INQUIRIES PER INSERTION
Classified	18.5
7 line display	10.9
16 line display	29.0
20 line	10.6
36 line blind	60.0
56 line display	28.0
Half page	41.0
Full page	62.3

The following figures are derived from advertisements run in *System* magazine.

SIZE OF AD.	INQUIRIES PER INSERTION
Classified	23
Quarter page	68
Half page	109
Full page	154
Two page	69
Three page	283

If 100,000 is assumed to be the average circulation of the magazines listed in Shryer's book, it is seen that the average number of inquiries per insertion is below the 10 per cent which he mentioned as the average.

¹ Shryer, "Analytical Advertising," pages 180 and 190.

The whole argument to date indicates that advertising may pay, but does not necessarily do so. Another table, taken from Scott,¹ has some bearing on the efficiency of advertising. He says: "Data were secured from all firms located west of Buffalo and advertising in the *Ladies' Home Journal* for a period of eight years. All firms were grouped together which had appeared in this magazine but one of these years, all which had appeared two of the years, all which had appeared three of the years, etc., up to and including all of the firms which had appeared the eight years under consideration. After a careful analysis had been made, the following significant results were secured:

NUMBER OF YEARS THE FIRMS CONTINUED TO ADVERTISE	AVERAGE NUMBER OF LINES USED ANNUALLY BY EACH FIRM
1 year	56 lines
2 years	116 lines
3 years	168 lines
4 years	194 lines
5 years	192 lines
6 years	262 lines
7 years	218 lines
8 years	600 lines

"This would seem to indicate that in general if a firm uses 56 lines annually in the *Ladies' Home Journal*, the results will be so unsatisfactory that it will not try it again. If it uses 116 lines annually, it will be encouraged to attempt it the second year, but will then drop out. If, on the other hand, it uses 600 lines annually, the results will be so satisfactory that it will continue to use the same magazine indefinitely.

"There were but 1,247 firms included in the data presented above. Other data were secured from the entire number of firms advertising in the *Ladies' Home Journal*, the *Delineator*, *Harper's*, and *Scribner's* for certain periods, but inasmuch as the data from all these

¹ W. D. Scott, "The Psychology of Advertising," page 179.

merely confirm those presented above they are not added here."

It can scarcely be said that the figures given by Scott are entirely fair to advertising in general. But one medium is considered in each case, and the cautious advertiser who wishes to try out a medium before risking too much would be very likely to stop if small insertions did not pull well as compared with similar advertisements in other mediums. Then, too, it sometimes happens that the commodity is necessarily short-lived and the advertising, no matter how successful, would soon stop.

The general conclusions which we are forced to accept by these considerations is that advertising will pay if it is done correctly. The successful advertiser must, however, be alive to a very great number of possibilities in his complex situation. He must keep track of so many different things that it is bewildering to the layman. In addition to studying the market and crop conditions, the activities of competitors, he must be definitely aware of at least two things concerning his own advertising. He may be able to keep accurate records showing the returns from the different mediums, eliminating those which prove to be unprofitable, and depending for his business upon those which bring in sufficient returns. Sometimes, obviously, this is impossible. In cases where the commodity is procurable at retail stores, he has no way of determining the exact effect of his campaign. About the only thing he can do under the circumstances is to determine whether the volume of business waxes and wanes as the volume of advertising in certain sections increases and diminishes. This is, at best, an inaccurate method of determining results. However, it appears from personal letters received from advertising men that very few of them know anything at all about the effectiveness of their advertising.

If the advertiser is unable to check his returns accu-

ately, a second possibility is for him to improve the quality and kind of his advertising to such an extent that it must bring in more business. The second or constructive improvement can be made by knowing and applying the principles of the various sciences which are related to advertising.

Psychology is one of these sciences, and the rest of the book will deal very largely with the principles of attention, memory, and action or response. A knowledge of these laws, if applied intelligently, ought to enable the advertiser to construct his copy and plan his campaign so that it will secure better attention, be remembered longer, and induce action in a greater percentage of persons, who will, on the average, act more promptly and energetically than they would in response to less scientific copy.

CHAPTER II

ADVERTISING AND PSYCHOLOGY

As was pointed out in the last chapter, advertising is related to a considerable number of the sciences. As a form of business, it is concerned with the laws and applications of economics. Since advertisements are so frequently attractive in appearance, a knowledge of the laws of æsthetics is important. Likewise, information concerning the principles of rhetoric, English, and grammar is fundamental, for so many of the advertisements which appear depend for their efficiency upon a printed appeal. Other sorts of information, for which no scientific names have developed, are likewise important — concerning mediums, circulation, prices, make-up, and the like. The list does not pretend to be exhaustive, but is given simply to indicate the wide range of information necessary to the practical advertiser.

Equally important is a knowledge of human nature. One phase of the study of human nature is called psychology. The exact meaning of the term will be given at a later time. It is sufficiently well known, however, to require no elaborate explanation.

The advertising man has managed to get along for several thousand years without the help of psychology. He undoubtedly could exist for as many more years without the assistance of that science, but the result would be the waste of his materials, in this case money, which would make him inefficient. In a similar manner, practical building took place before much of anything

was known about the laws of mechanics and physics. When these sciences had reached a sufficient development, practical applications were made of the laws which they had determined and the whole building industry was revolutionized. In much the same way, shipbuilding, transportation, and the like, have been tremendously improved by the application of the laws which have been worked out through the sciences which are related to the industries. The opinion may be ventured that it is possible to measure the development of any industry by the number of scientific laws which are applied by it. In like manner, the development of the science may be determined by the use which the industries make of its laws. The industry is, however, more dependent upon the science than the science is upon the industry. Formal mathematics could exist without barter, trade, and business, but business could not exist without the application of mathematical laws.

The real gain which results from the application of scientific laws to the various industries is a gain in efficiency. It eliminates waste of materials and of time.

The question now arises, What can psychology contribute to advertising? How can a knowledge of the principles and laws of psychology help the advertising man? It has been indicated that advertisements give information and try to bring about action as a result of the information.

Psychology has been defined at different times as the science of consciousness; the science of the mind; and the science of behavior. Whatever definition is used, psychology deals with the facts of the mental life — attention, sensation, perception, memory, reasoning, feelings, emotions — and also with the facts of the behavior of the individual.

Psychology should be able to help the advertising

man in two ways. In the first place, it should aid him to understand himself, his strong points and his limitations. The advertising man is a mental worker. His mind is the instrument which he uses in his work. He would have little use for a carpenter who planed boards with a saw, pried out nails with a chisel, and drove them with a mallet. He insists that the workmen he employs shall be able to use the tools of their trade, and use them not only correctly, but to the best advantage. Since the advertiser is a mental worker, he should thoroughly understand his mental tool, knowing what it can do and what it is incapable of doing. A thorough acquaintance with the tool will make him much more efficient.

In the second place, psychology should help him by giving him the various laws of mental processes: how to get and hold the attention of the reader, how to arrange the advertisement so that it may be easily read; how to make the commodity remembered by those who read the advertisement; under what circumstances to use "reason why" copy and the kind of argument which is most likely to appeal; what are the desirable emotions to arouse and how to arouse them; and finally, most important of all, how to bring about the desired action on the part of the reader.

Before turning to a detailed discussion of these special processes, however, it will be worth while to show in a general way how mind has originated and developed and how the "advertising" consciousness has arisen. To do this, a brief discussion of the functional or evolutionary standpoint in psychology will be necessary.

Functional psychology affirms that we did not always have minds, but developed them as the occasion arose. Consciousness, attention, and consequently mind appear only in the presence of novel and unusual situations. This is perfectly familiar from our daily life. In walking, the process is habitual, hence uncontrolled by conscious-

ness, until something about it arises which the established habit cannot take care of. Should we stumble or find it necessary to shorten or lengthen our step to keep pace with a companion, attention is directed to the break in the habit. Consciousness directs the activity until the old habit can reassert itself or a new habit be formed. It is by just such a process that we must trace the development of mind.

If we can trace the development of consciousness in the human infant, it will be possible to apply the same general rules to the development of consciousness in the human race. "Obviously in the case of the infant there can be at the outset no acquired habits, and it seems reasonable, therefore, to assume that conscious activities emerge at the point where the reflex acts are found inadequate to meet the needs of the particular situations.

"Evidently the equipment of coördinations with which we have found the newborn infant supplied cannot carry him very far in his adjustment to the complex surroundings amid which he finds himself placed. . . . If the reflexes and automatic acts were wholly competent to steer the organism throughout its course, there is no reason to suppose that consciousness would ever put in an appearance."¹

To explain the beginnings of mind in the race, the same general assumption is made. Where the inherited movements, the instincts and the reflexes, are incapable of handling the situation, consciousness appears. Granted that it may be a very vague sort of consciousness, it is still enough to make the animal perform some movement, new either in combination or in direction. If the new movement proves to be adequate to meet the situation, it becomes a habit. The habit will tend to persist until some other chance movement proves to be more

¹ Angell, "Psychology," page 64.

satisfactory in dealing with the situation, or until a complexity occurs which requires a different response.

Similarly, a group of persons dwelling together will go along in the familiar way until some crisis, climatic in nature, dealing with the food supply, the actions of other groups, the unusual phenomena of nature, etc., appears, to meet which there is no group habit or custom. Such conditions are fairly prevalent among the more primitive tribes of peoples. Not that they do not occur among the more civilized groups as well; but the conditions are so much simpler with the more primitive peoples, that their study is less difficult.

When any new situation confronts the group, some new adjustment, or habit, is necessary. This is usually hit upon by a trial and error method. Various activities are tried until one which is adequate is chanced upon. This, then, becomes a custom of the tribe, and is particularly binding upon the members of the tribe. In this manner, a large number of tribal habits or customs are developed which become the standards of action of the group.

The activities of our primitive ancestors were largely if not entirely practical. The only reason for acting at all was to satisfy some need. When a need was felt, action resulted for the satisfaction of that need. The fundamental needs of the group were relatively simple, being based very largely upon the seeking of food and the avoiding of danger. But these needs could not be satisfied so easily. Food meant game, fruit, or cereals. The procuring of game gave rise to secondary needs, such as weapons, traps, and the like. Each of these secondary needs, in turn, gave rise to other needs, so that a considerable degree of complexity of activity and adjustment became necessary before even the relatively simple needs could be satisfied.

But the kinds of game, the sorts of danger which must

be avoided differ with different localities. The habit which will be developed depends upon the environment. All must eat, but the particular things they will eat vary with the different localities, for the same kinds of game and the same kinds of fruit and vegetables are not to be found everywhere.

The group of habits and customs which an individual in such a group forms in order to satisfy his needs may be termed his occupation. Our next step is to show that the occupation of the individual or of the group determines very largely the type of mind. We have asserted that mind or consciousness must develop in terms of the environment. Since all knowledge is received through the senses, only those things which the sense organs are exposed to can become a part of knowledge. The only objects which can stimulate the sense organs are the things in the neighborhood of the sense organs. Consequently, the things which one knows about must be the things which he can experience. In other words, mind develops in terms of the environment.

Any habit, however, represents but one way of perceiving the environment. So, if we have but one habit or one custom by means of which to meet any situation, we are not receiving all the possible benefits of the environment. The occupation is determined by the set of habits which we have formed, so it becomes necessary to limit the above statement to mean that mind is primarily developed in terms of the occupation. It is also in terms of occupation that most of our standards are developed. By a comparison of the result of our work with that of other individuals, we arrive at a knowledge of success or failure. Because the only objects we can know about are found in the environment, our knowledge of the things about us determines the desire process. It is because of the occupational knowledge which we have that certain things stand out as im-

portant and others are relegated to the background. "So fundamental and pervasive is the group of occupational activities that it affords the scheme or pattern of the structural organization of mental traits."¹

We can now see why an agricultural group should differ from a hunting group in customs, language, and thought. We can see why the agriculturist should think in terms of plow animals and cereals; why the hunter should conceive his world as made up of weapons, dogs, and wild animals; and why the hunter became skillful, sly, and rapid of motion; why the farmer grew stolid, patient, and deliberate of movement.

Granting that consciousness has developed in terms of those objects in the environment which are important for satisfying the needs of the individual and the group, it will be important to trace, as far as possible, the development of the advertising consciousness. We shall proceed on the assumption that the basic cause of all activity is the satisfaction of some need. Sometimes the need is conscious and sometimes unconscious. Where we are dealing with the higher forms of conduct or action, the cause is always a felt need. From this standpoint, advertisements are simply ways either of informing us of how we can satisfy existing needs, or of telling us about needs which we had not previously realized.

Going back as far as we can in the early history of the human race, we do not find any advertising as the term is used in this book. There are at least two reasons to account for this. In the first place, it is doubtful if advertising can exist where there is no private ownership. Where there is no personal property, there can be no advertising, for there can be no pecuniary profit involved in any transaction. And there is good reason to believe that in certain primitive conditions, group

¹ Dewey, "Interpretation of the Savage Mind," *Psy. Rev.*, 9, page 220.

ownership was the rule. Secondly, in the earliest communities, there was little if any specialization of function among the different members. The tasks of the men and of the women were necessarily different, but there was little specialization among the men and little among the women. Each family made the articles of clothing, the shelters, the weapons, and procured the food necessary for its maintenance. No one man or woman made all the foot covering that was used by the tribe, nor did another make all of the clothes, and a third all of the weapons. Each family, among the primitive peoples at least, was complete in itself, carrying on those activities which were necessary for self-preservation.

When the condition arose in which each family and each tribe was not complete in itself, when other tribes or families, living in a different environment, possessed articles which the first tribe did not possess, but which for any reason it would have liked to possess, there developed the process of barter or trade. The tribe had formed habits of reacting to the familiar objects in its environment. For the new object, obtained through barter, no habitual mode of reaction had been developed, so it was necessary to work out a new one. The new habit might be an imitation of the one employed by the original possessors of the article, or it might be especially created. Should the new habit prove to be very successful from the standpoint of satisfying some need not previously realized, it in turn became a group habit and resulted in the demand for the article. In some such way as this, barter developed to satisfy the needs of the group by bringing in articles which could not be found in the environment. It is in situations like this that one form of advertising arose.

Another situation which called out advertising appeared with the development of the specialization of function. When, by accident, one individual stumbled

upon a new and better way of tanning leather, or developed an especial efficiency in some other part of the task, that individual in time became the foot-wear maker of the tribe. When another developed an especial aptitude for making bows and arrows, that became his occupation, freeing others from that task and allowing them to devote their time to other pursuits for which they were better adapted. In this way, because of special knowledge or on account of special physical characteristics, certain tasks were given over to certain individuals. The need for footwear and for weapons still persisted, but the exact knowledge of how to satisfy that particular need was the equipment of the few. Others had to turn to them for the satisfaction of those needs. In the small group, it was easy to keep track of the specialists in any line. But as the groups grew larger, it became impossible for any one to know everybody else. In this condition, it was necessary to announce that a certain individual was the maker of such and such goods. The other individuals in the group, because of the need which they felt, would get the articles from him, in turn supplying him with some other form of commodity which satisfied one of his needs. In some such way as this, the need for advertising arose. It consisted at first in merely stating a fact.

With the appearance of competition, however, more than simple publicity was necessary. When there were several possible ways of satisfying the same need, there developed also a need for real advertising. It became necessary to give reasons for obtaining the goods from one individual rather than from some other. If one commodity proved to be superior to another for any purpose, the crowd used that commodity. If the assertion of superiority was included in the announcement, the announcement would pull more trade. In

this way a new standard was set which other makers of the same commodity must come up to or go out of business. Soon a competitor had raised the quality of the goods to another level and so set a higher standard, which the other makers must in turn equal in order to survive in business.

The announcement of the different goods to satisfy the different needs of the people became, then, a part of the environment of the people. The fundamental needs were still there and demanded satisfaction. The various ways of obtaining satisfaction of the needs became a part of the mental equipment of the members of the group.

Soon a condition arose, however, in which the advertiser went ahead of the group. He developed ways of satisfying needs which up to that time had not existed. His problem, then, was to implant the feeling of need in the consciousness of the group. This could only be done through education. Oftentimes the education was successful, sometimes it was a failure. Be that as it may, the standards of cleanliness, of sanitation, of health, have been advanced generations before their time by the educational campaigns which have been carried on by the national advertisers.

CHAPTER III

ADVERTISING AS A PART OF THE ENVIRONMENT

IN the last chapter, it was shown how advertisements have become a part of the environment in which we live. The purpose of the present chapter is to study the advertising environment somewhat more in detail. This environment may for purposes of convenience be split up into two parts — the physical and the mental.

The discussion of the first leads to an answer to the question, Where in the physical world are we in the habit of looking for information relative to the different ways of satisfying our needs? Put in another way it asks, How does the one who has a commodity to sell inform the public of the fact and try to obtain a response from them?

Obviously, the advertiser is dependent upon the various methods which are in vogue at any time for the dissemination of information. Before printing was invented, communication between individuals was very largely an oral process. This meant that information was very largely conveyed by word of mouth. Criers, heralds, and the like were frequently employed to read or recite notices. In course of time, the town crier became an official, who, when he had information to give out, called the people together and delivered his messages. Advertising appeals were frequently among his utterances.

Another method in use in the early days of advertising was the posting of a written notice in a conspicu-

ous position in a place where large numbers of people were in the habit of congregating. In ancient Rome the public bath was a favorite place; in the modern small town, the post-office is often used for the same purpose.

In England, before the masses had learned to read, signs, constructed in the nature of a rebus, were often employed. Pictures of the finished product were frequently adopted. For example, a sign containing the picture of a boot would be used by a bootmaker, etc. The survival of these tendencies can still be seen in many of the modern signs. — The barber pole is a striking example.

After the invention of printing, with its necessary corollary, increased reading by the masses, the use of printed advertisements gradually developed, until, at the present time, the custom has assumed tremendous proportions. With the development of printing, modern advertising may be said to have begun its existence.

Anything which contains an announcement made by an advertiser may be called a medium. The number of mediums is limited only by the ingenuity of man. The list is so great that a mere enumeration of the different mediums would take a considerable amount of space. Magazines of all sorts, newspapers, programs, etc., are mediums; likewise pencils, calendars, blotters, and the like may be mediums. Houses, barns, fences, and signs attached to buildings are often employed to carry advertisements; alleged personal mail is full of them. The landscape gardener, by planting flowers or grain of different colors in the correct relations upon the side of a hill has succeeded in advertising certain commodities. Such are a few of the mediums which have been employed. In addition to all these, any commodity which has been sold and appears in actual use must be added to the list. Obviously, a thorough and complete classification would be very difficult.

Before turning to the detailed study of the physical mediums, the mental mediums will be briefly discussed. As a result of exposure to the physical mediums, the minds of the readers become more or less saturated with information concerning advertised commodities. Each new advertisement of the same commodity adds to the strength of the impression, and to the likelihood of its being recalled at any subsequent time. By the cumulative effect of the impressions of subsequent advertisements of the same commodity together with the advertisements of different commodities, a knowledge of the different commodities — different ways of satisfying the various needs of the individual — results. This leads to at least two tendencies. First, the advertisements or the commodities are mentioned in conversation; in that way, knowledge of the commodity spreads. In the second place, the use of an advertised commodity, either by the individual or by a friend of the individual, likewise tends to spread the information concerning the commodity. Once it is in common use, its appearance is more or less expected. The impression spreads that those who are socially wise or financially able tend to use the commodity. In this way, there grows up an impression of the value or worth or status of the commodity which probably would never be developed by advertising alone. The total impression received from advertising, seeing the article in use, hearing it discussed, the vague intangible attitude towards it which is expressed by the habits which individuals have developed with reference to it, all of these fuse to form a typical notion of the commodity. This typical notion somewhat definitely establishes the place of the commodity in the business world. Frequently the person who possesses the typical notion concerning a commodity is not in a situation to purchase it. Even so, the chances are that he will some day be a purchaser of the advertised

commodity in some form. The advertising space which originally informed him of the proposition, the talk concerning it, the use of it by other persons, will be seed cast upon fertile ground. For the person may purchase many years after having seen the first advertisement. The first advertisement, however, was sufficient to start him in the direction of the purchase. Just what effect this process has with reference to any advertisement or to any campaign, however, it is impossible to state in a definite way.

As a subdivision under the mental mediums may be mentioned the various types of advertisements and the appeal which they are supposed to make. One division which has often been made is to separate advertisements into three groups: classified, display, and publicity. From a strictly psychological standpoint, a somewhat finer classification is necessary. The following may be suggested:

1. Classified advertisements. These are supposed to be primarily for the individuals who are already interested in the proposition, those who feel a definite need and look in the most probable place for a way of satisfying it. It need not then occupy a prominent place in the medium, for its attention value is practically assured. It is a cheap and effective method of informing those who desire to be informed concerning any particular point.

2. In the second place, there are display advertisements which come under the same category as the classified. If an individual feels a definite need, as for furniture, he has two main ways of satisfying that need. He can either go to the furniture dealers in his particular town and in the neighboring towns, or he can look up the furniture advertisements in the various magazines which he can find. In the second case, the advertisement is to all intents and purposes, as far as the prospect

is concerned, a classified advertisement. A definite need is felt and one of the acts resulting from the need is the search for a means of satisfying it. Consequently, a certain percentage of the display advertisements in any magazines and newspapers are psychologically classified advertisements. Or, to express the thought a little more exactly, any display advertisement in any medium is a classified advertisement for a certain percentage of the readers of the medium. It may be asserted that the immediate business which many of the display advertisements bring in comes because they function like the classified variety. The fact that the display advertisement brings in more business is because, owing to its larger size, it is more likely to be seen by a greater number of persons. For the remainder of the readers, however, the display advertisement will belong under certain of the other categories.

3. A third type of advertisement is the competitive variety. The need for the commodity is realized by the reader, but there are so many ways of satisfying the particular need, that the reader is often indifferent as to the way in which it is done. Or it may be that his present method is satisfactory. The soap situation is an admirable example of this. Two possibilities exist under such conditions; the concern may advertise very generally in the endeavor to increase the total amount of soap sold, trusting that it will get its increased percentage of sales from the boom in trade, but being contented with a very small percentage; or it may endeavor to influence the casual reader of advertisements to purchase its own particular brand, doing consequently less philanthropic work but better business. In the latter case, the advertisement must mention some particular reason for buying that commodity or must teach a way of using it in a new manner or for a new purpose. The particular reason or excellence argument would possibly

be more effective in persuading those who are already users of the same or a similar commodity; whereas education would be more likely to attract new buyers while retaining the old.

In order to obtain a satisfactory amount of new business, an advertisement must contain, either by picture or in words, an announcement of some particular excellence of the commodity, some reason for buying it rather than some other, a new use for the commodity, or it must show how the use of the commodity will benefit the user. An example is to be found in the campaign conducted a few years ago by a salt concern. Selling points were estimated by the men in charge, and it was found that the point which loomed largest in their minds was the purity of the product. Purity was consequently made the keynote of the campaign, and those financially interested awaited returns. They found, after several months, that they were not doing as much business as they had expected to and cast around for the reason why. An analysis of the accounts showed that most of the sales came from the Atlantic coast and the Pacific coast. This startling discovery set them to figuring again. It was remembered finally that one of the peculiar properties of their salt was that it would always pour. Damp weather did not affect it. Ordinary, average salt in damp weather and in damp climates refused to come from the shakers, but this variety was always serviceable. The purity appeal was then discarded and a new series of advertisements based on the idea that it would always pour was prepared. Sales immediately began to pick up.

4. A fourth type of advertisement is the sort which tries to educate the public up to feeling a new need and then suggesting a remedy for the need. This can be done by showing how the same commodity can be used for different purposes, but probably much better

by showing how the commodity will be of benefit to the user. If it will make him more efficient, healthier, more alert mentally, improve his social position, and so on, if it contains either the selfish or the social appeal, it is likely to be very forceful.

5. A fifth type of argument is for the purpose of keeping the old buyers. It is primarily a reminder that the same old firm is still doing business at the same old stand; that its financial condition is such that it can still afford to advertise. It also keeps the trade name before the public and promotes good will.²⁸ It is important in keeping the commodity remembered by the buying public.

Many of these classes overlap. The general tendencies are, however, distinct. Any one advertisement may, to be sure, belong in the last four of the five classes at the same time, being in one class for some individuals and in another for other persons. The classification represents the effect upon the reader rather than any peculiarity in the structure of the advertisement.

We are now in a position to study the question of mediums somewhat more in detail. In the first place, certain general considerations will be taken up. Following that, a more minute study will be made of the psychological qualifications of certain classes of mediums.

1. First, the value of any medium depends upon the total amount of its circulation. In advertising, the appeal is made to people in masses, so the more that are reached by any one advertisement, the more will probably respond by buying the article. Even though a person is not influenced to the point of purchasing the commodity, good will may be established in the minds of a considerable number.

2. For the procuring of immediate returns and the establishment of an effective good will, however, more than sheer mass of circulation is necessary. For im-

mediate results an advertisement must be seen by possible immediate purchasers rather than by one who may purchase in ten years. Such promisory good will is undoubtedly a valuable asset, but it will not keep a business going. Consequently, it may be argued that an advertisement should appear in a medium where it will be seen by those who are in a position to purchase the commodity immediately.

The circulation of any medium may be divided, then, into three classes. First, the total circulation may be called the general circulation. Second, a certain percentage of the readers will be possible customers and this percentage may be said to constitute the particular or specific circulation of the medium. Third, the remainder of the readers will either not be interested in the proposition or will not be in a position to buy, and this group may be said to make up the waste circulation of the medium. This circulation is not entirely waste, however, for it undoubtedly does arouse a certain measure of good will and may induce future purchases.

To obtain specific circulation, it is necessary that the advertiser possess a considerable amount of knowledge concerning the distribution of the circulation of the medium, the distribution of his commodity, and so on. Considerations of this nature should determine the selection of the mediums which are employed. That the magazines are aware of this condition is proved by the advertisements of magazines which appear in technical advertising journals. Frequently it is stated that such a percentage of the readers are men and a certain percentage women. Likewise, an analysis of the professions of the readers can be obtained by the advertiser, together with a statement of the relative number of city dwellers, farmers and inhabitants of small towns and villages who subscribe.

3. In the third place, the quality of the advertising

carried in the medium affects the value of the medium. As will be shown more in detail at a later time, fusions of impressions are constantly occurring, so that no one advertisement is judged entirely in terms of itself alone, but its value is influenced by numerous factors, such as the reliability and truthfulness of the other advertisements in the medium, the physical appearance of the other advertisements appearing on the neighboring pages, the quality of the paper upon which the advertisements are printed, the character of the medium itself, and many other things of like nature. A medium which guarantees its advertisements is an especially desirable one.

CHAPTER IV

THE DIFFERENT KINDS OF MEDIUMS

MANY attempts have been made to classify the different kinds of mediums, but the success attending the efforts has been relatively slight. The following summary, taken from *Printer's Ink*,¹ showing the amount spent for the different kinds, will show one system of classification. More recent figures show that the total amount of money spent annually in this country is over the \$700,000,000 mark.

Newspaper advertising	\$250,000,000
Direct mail advertising	100,000,000
Farm and mail order	75,000,000
Magazine advertising	60,000,000
Novelty	30,000,000
Billposting	30,000,000
Outdoor electric signs	25,000,000
Demonstration and sampling	18,000,000
Street-car advertising	10,000,000
House organs	7,000,000
Distributing	6,000,000
Theater programs	5,000,000
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	\$616,000,000

Of these classes, the following will be considered, for they represent certain psychological differences: newspapers, magazines, street-car signs, billboards, etc., letters and catalogues, samples and demonstrations, and novelties.

1. The *Newspaper* as a medium has certain very

¹ *Printer's Ink*, May 4, 1911, page 78.

definite advantages. It has a relatively dense circulation over a limited area. A very large percentage of the inhabitants of any city and the surrounding territory read the paper, and this fact makes the newspaper a very good medium for those goods which have a local distribution only. It has been argued likewise that the newspaper is a satisfactory medium for a national campaign, for by using enough different papers in different parts of the country, it is possible to obtain an intensive circulation which would be impossible with magazines alone. Add to this the fact that the newspaper appears every day of the year, and there is apparently developed a marvelous force for the national campaign, for the advertisements can be repeated as often as necessary. Again, because of the daily circulation, the newspaper is an ideal medium for special sales, bargains, for any proposition in fact which demands an instant response on the part of the buyer, or where the commodity is short-lived.

The reverse side of the picture is that an advertisement inserted in a newspaper must compete in attention value, memory value, and action value with the numerous other advertisements which appear in the same medium. Then, too, the quality of the paper upon which the news is printed is relatively poor. This makes it extremely difficult if not impossible to make the advertisement as attractive as it would have been in some other form of medium which used a better grade of paper. The use of color is prohibited. A third difficulty is that the newspaper is usually in the hands of the reader for a very short time indeed. Researches by Scott, which will be reported in detail below, show that the average time which each individual spent reading newspapers was about fifteen minutes. In so short a period of time, it is evident that very few advertisements at most can be noticed by the reader.

Certain facts relative to the reading of newspapers by the most prominent business and professional men in the city of Chicago were brought out by Scott.¹ He sent a questionnaire to 4000 men and received answers from 2300. He found that each person reads more or less thoroughly one or more papers. His tabulated results follow:

14 per cent read but one paper
 46 per cent read two papers
 21 per cent read three papers
 10 per cent read four papers
 3 per cent read five papers
 2 per cent read six papers
 3 per cent read all the papers (8)

Scott found that the majority who turned in reports thought that about 15 minutes was the average time spent by them per day in reading the daily newspapers. Four per cent spent less than 15 minutes daily, and 25 per cent spent a greater amount of time. Such a brief period permits of only the most cursory examination of any particular paper. "A favorite program, as reported, is the reading of the headlines, the table of contents, the weather reports, etc. Then if time admits or if anything especially interesting is discovered, attention may be turned for a few seconds or minutes to a more leisurely reading of the articles discovered in the preliminary search." Scott then points out the moral. The advertisement must be so constructed as to tell its story quickly. The advertiser, consequently, should construct his message in such a way that the important part may be taken in at a glance. If sufficient interest is aroused in this manner, the advertisement may then be read through as a whole.

The answers received to the questions showed that there was some relation between the profession of the

¹ Scott, W. D., "The Psychology of Advertising," pages 226-248.

individual and the paper which he preferred. It was not so close as to be alarming, however, especially among the business and professional men. Possibly one half of them could have been reached by using a single paper, three quarters by two papers and over nine tenths by using four papers. This is a point which should be kept in mind when planning any intensive campaign among one class of persons.

The reasons given for preferring one paper over another is striking when it is considered in relation to advertising. Scott's analysis is given below :

Local news	17.8	per cent
Political news	15.8	per cent
Financial news	11.3	per cent
Foreign news	9.5	per cent
Editorials	9.0	per cent
General news	7.2	per cent
Ethical tone	6.7	per cent
Sporting news	5.8	per cent
Cartoons	4.3	per cent
Special articles	4.3	per cent
Music	1.88	per cent
Book reviews	1.84	per cent
Arrangement	1.4	per cent
Society notes	1.4	per cent
Drama	1.1	per cent
Art . . . . .	.9	per cent
Advertisements . . . . .	.44	per cent
Storiettes . . . . .	.13	per cent
Weather . . . . .	.1	per cent
Humor . . . . .	.05	per cent

It will be seen from the table that the overwhelming reasons for taking a particular newspaper are in connection with some news value. It is difficult to draw the exact line of demarcation between what is news and what is not news when the term is taken in the broad sense, but whatever definition be given, it will be found that the news element was the important one in between 65 per cent and 95 per cent of the cases given in Scott's table. Consequently, it is possible to draw a

second moral concerning newspapers as mediums, namely, that the advertisement, to compete with the news interest of the paper, must itself be newsy in character.

Scott says further: "The circulation of the evening papers in Chicago is greater than that of the morning papers, and it is probable that they are preferred in more cases than are the morning papers. For business and professional men the reverse is true; among them the morning papers are read in larger numbers and are preferred in more instances than the evening papers. With these men the evening papers are to be regarded merely as subsidiary. The laboring classes have no time to read a morning paper; but after the day's work is over the evening paper is read, and doubtless much more than fifteen minutes is devoted to it. Many business and professional men prefer evening papers and many laboring men prefer the morning papers, but such instances are exceptions rather than the rule.

"A majority of business and professional men fail to see advertisements appearing in evening papers and are not greatly affected by those they do see. Likewise, probably a majority of the laboring class is unaffected by advertisements appearing in the morning papers. If these statements did not have so many exceptions the advertiser's task would be comparatively simple when it comes to choosing a medium for any particular advertisement. If he wanted to reach the better classes, he would use the morning papers; if he wanted to reach the laboring class, he would employ the evening papers."

2. *Magazines, Trade Journals, Technical Periodicals*, and the like have their special and particular advantages and disadvantages as mediums. Among the advantages may be mentioned the much greater circulation which certain magazines have than newspapers. A corollary of this is the fact that the magazine has a

much wider range of distribution than the newspaper, and is therefore a better medium for national advertising when expense is considered. The opposite side of this advantage is that the circulation is not so condensed as that of the newspaper so that the magazine will not lend itself to so intensive a campaign as will the newspaper. The purely local merchant will have very little use for space in a magazine, for the resident in San Francisco will care little about the strictly retail trade in New York and Chicago. The magazine appears, also, with relative infrequency, once a week, fortnight, or month being the general run. This makes it impossible to advertise many different kinds of commodities in it. On the other hand, the magazine has, on the average, a longer life than the newspaper. It is not so lightly discarded, for it usually represents an article of more value to its purchaser. For this reason, it will be seen again and again, so that the contents have a much better chance of being seen. This would tend to give advertisements appearing in its pages a higher attention value, a greater liability of being seen by the reader. This is especially true of certain of the preferred positions, is, in fact the condition that makes them preferred positions. The magazine, too, is printed usually on better paper than the newspaper. Consequently, advertisements appearing on the magazine pages are much more likely to be pleasing to the eye, for the pictures are much better and it is possible to use color in the make-up.

With our present knowledge, it is absolutely impossible to determine which is the better medium. Each possesses certain advantages and each in turn presents certain disadvantages. The only point upon which they are at all comparable is in a national campaign, and with reference to this point definite data are lacking.

Several statistical inquiries have been made concern-

ing the number of individuals who read the advertisements in magazines. Scott,¹ who at different times observed 600 men in the Chicago Public Library, counted the ones who at the moment of inspection were engaged in reading advertisements. He found, in this snapshot way, that 10½ per cent were at any moment engaged in reading the advertisements in the magazines, the remaining 89½ per cent were reading articles in the body of the magazines. This is, of course, no guarantee that some of the 89½ per cent would not at some time read the advertisements. Scott further found that the advertisements were read in a very cursory way, little attention being paid to them. He generalizes from these data, and concludes that people, on the average, are little interested in advertisements and spend little time in reading them.

As a result of a questionnaire which was circulated by one of the students at the University of Michigan, it was found that of 500 college students, between 85 and 95 per cent consistently read the advertisements.

The number of persons who read magazines is very difficult to determine. The average number of magazines found in families of different incomes has been determined, however. It is represented graphically in Fig. I. The obvious deduction is that magazines are, in general, to be found in the possession of the families with the larger incomes. Consequently, articles appealing primarily to the poorer classes should not be advertised in general magazines.

A striking fact relative to magazine circulation is the seasonal fluctuation. As shown in Fig. II, the most advertising is usually carried in May and December, the least in January and August. This condition correlated very closely with the periods of maximum and minimum mental and physical efficiency.

¹ Scott, W. D., "Psychology of Advertising," pages 135-139.

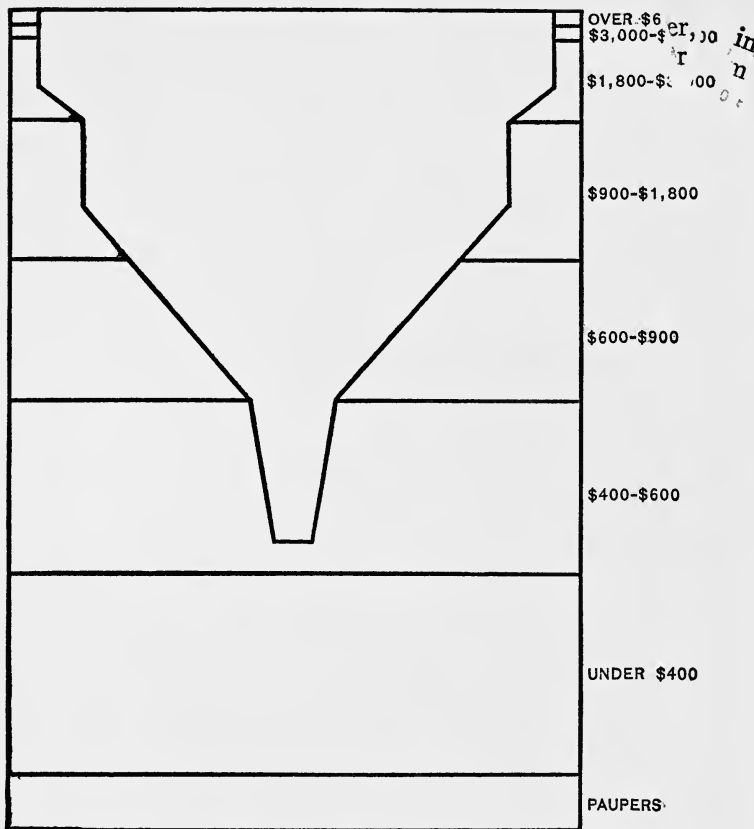


FIG. I.—The chart shows the relative number of families with different annual incomes which have magazines in their homes.

Based on the census of 1900. Quoted by permission from Starch, "Advertising," page 105.

The circulation of the technical magazines, trade journals, etc., is pretty strictly limited by the character of the periodical. The character of the advertising which may profitably be carried is limited by the charac-

ter of the individuals who go to make up the circulation. Such mediums are good, therefore, for the advertisements of certain technical commodities.

One of the main disadvantages of both newspapers and magazines as mediums is that it is very difficult to obtain a specific circulation by means of them. The ad-

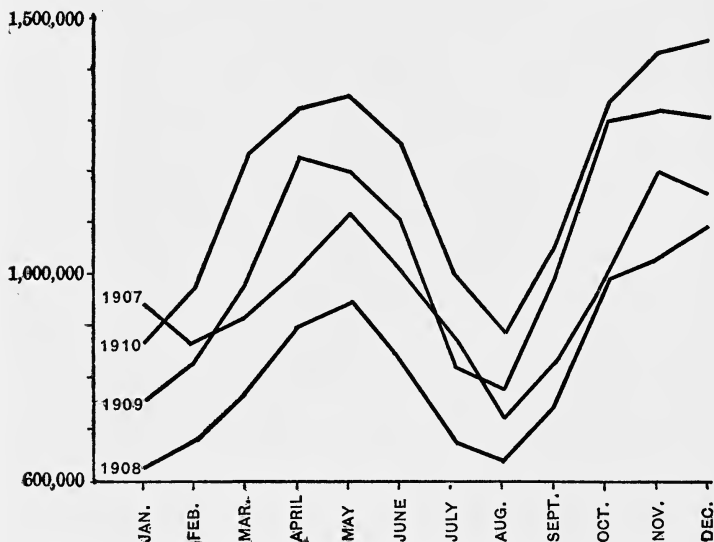


FIG. II. — Showing the total number of lines of advertising carried monthly by the leading magazines for the years indicated.

Printer's Ink, Jan. 19, 1911, page 30.

vertisement must go to many who are not particularly interested in the commodity, so the use of advertising space in these mediums represents a large degree of waste.

3. Street railway placards are excellent devices for catching the attention of the passing throng. It has been estimated that in the larger cities, 85 to 90 per cent of the adult population ride in street cars daily. If

this is so, the street car offers a very valuable medium for the advertiser. Several factors contribute to add to this value. In the first place, the size of the cards being practically the same, 11 by 21 inches in most cities, the attention value of each is mechanically the same. While the position occupied by the card may have some effect, the system of having them carried by a slow moving belt avoids this difficulty. So, on the theory of chances, each one has an equal chance with every other of being seen. Secondly, the time spent in looking at the cards is largely free time. The individual must stay in the car a certain length of time to reach his destination. The time frequently lies heavy on his hands, and the advertisements are read in sheer self-defense to make the time less tedious. As a result, the cards are often read again and again. Thirdly, it often happens that the street-car sign is the last advertisement seen before the individual enters a store and the recency of the appeal may be especially effective. Lastly, the cards are read in a leisurely manner. As Scott¹ points out, those things which we attend to for a long time are regarded as important. If a thing is unimportant, we spend little time on it. Since we spend so much more time on the street-car signs than on the other forms of advertisements, we are then likely to give them a greater value, to attach a greater importance to them.

4. Street signs, billboards, electric signs, and the like are seen by large numbers of persons if they are located favorably. Usually, on account of the necessary size of the print or letters, a long appeal cannot appear upon them. They are largely serviceable as reminders and by the repeated effects, may add greatly to the memory value. They are efficient ways of making the commodity well known by name.

5. Letters and catalogues are advantageous mediums

¹ Scott, W. D., "The Psychology of Advertising," page 221 ff.

for they may be sent only to those persons who are definitely interested in the proposition, thereby making their circulation specific. That is their main advantage. The main difficulty is to get them read.

6. Demonstrations depend for their efficiency upon the principle of imitation. We see somebody else do something; the result is pleasing, so we desire to do the same thing ourselves. They also tend to call attention to the commodity.

7. Samples are usually given so that a habit may be developed of using the particular commodity. For this reason, the sample should be large enough to give the individual several chances to use the product. Using it once will seldom develop a habit. There is also the inertia of other habits to be overcome. We are largely conventional, tending to prefer the old and reliable and usually disliking to take chances on anything new. Consequently, the sample must be generous enough to allow the user to give it a fair trial and to enable him to regard it as not a new, but a relatively old friend.

8. Novelties are supposed to further good will, to make us pleased with the giver. If a man gives us something, we are pleased. The pleasure derived from the gift becomes associated with the giver and there arises the mental impression called good will. We like to trade with him again. The novelty or the gift usually presupposes previous trading with the merchant, however.

Such are some of the different kinds of mediums. Their good points and their bad points, from the psychological side, have been pointed out. Nothing has been said concerning the economic side nor the artistic, for those are points which do not come in the proper scope of this work. The advertising man should know the laws of the various sciences which are related to advertising and make the best possible use of them.

CHAPTER V

INFORMING THE CUSTOMER

THERE is very general agreement among psychologists at the present time that all of the information which we possess must have come in by way of the senses. It is true that this information may be rearranged, combined in new ways, but the processes which are recombined thus are simply bits of the old experiences which have been taken apart and put together in a new way.

Since the only method which can be employed by the advertiser to inform the world at large concerning his commodity is by appealing to some of their senses, it is necessary that we study briefly these avenues for receiving impressions from the outside world.

The studies of the anatomists and physiologists have shown that there are special arrangements possessed by each normal individual which collect energy from the outside world and forward it as a nerve current to the brain and in most instances, eventually, to the muscles. These receiving structures are called sense organs. Each type of sense organ is structurally different from every other type, and is therefore fitted to receive a certain kind of energy from the environment. Somewhat like wireless instruments, they may be regarded as being tuned to receive differently. We may, then, have as many different kinds of information as we have sense organs.

Each one of these sense organs is in turn made up of several different kinds of receiving structures, each one

of which is to be regarded as receiving a different form of the same kind of energy from the outside world. Thus, the eye as a total structure is an instrument for the reception of the so-called ether vibrations, which give sensations of light. In the eye are still other special structures, called end organs, some of which are stimulated by rays which produce impressions of red, others of yellow, others of green, others of blue, others of white and still others of black. The simple experience given by one type of end organ only is called a sensation. It follows that each of the sense organs is capable of giving us several different kinds of experience. The sense organs determine the main classes of sensations, and the end organs within the sense organ, the number of sub-groups under the main group. On this basis, the different senses may be classified as follows :

Visual	Red	Olfactory	Ethereal
	Yellow		Aromatic
	Green		Balsamic
	Blue		Amber-musk
	Black		Allyl-cacodyl
Auditory	White	Kinæsthetic	Burning
	Noise		Caprylic
	Tones		Repulsive
Cutaneous	Cold		Nauseating
	Warmth		Muscles
Gustatory	Pressure	Static	Tendons
	Pain		Equilibrium
	Sweet		Balance
	Salt	Organic	Dizziness
	Sour		Hunger
	Bitter		Thirst

This is the entire equipment of man for receiving information from the world in which he lives. Many of the end organs in different parts of the body are being constantly stimulated, — are receiving energy from the environment, — so that a constant mass of sensations is pouring in upon the individual. These combinations are called sensation complexes. Thus our knowledge

of the world is usually received in the form of sensation complexes, made up of large numbers of sensations which are experienced simultaneously. These sensation complexes are modified by and grouped with our memories of like past experiences to form what are called technically perceptions. Our ordinary awareness of an object is called a percept. A single sensation is never experienced by an adult person, and the only reason for mentioning this class of phenomena is because sensations are the elements out of which our experience is built up. From this standpoint, they correspond closely to the elements of chemistry.

A brief discussion of the various sensations will be given, more for the sake of what is coming after than for any present considerations. Since vision is the sense which is most closely related to advertising, it will be left until the last.

These groups of sensations may be divided into three classes: (1) those which give us information concerning the body itself, its position, its general welfare, etc.; (2) those which give information concerning things which are in actual contact with the body; and (3) those which inform us concerning objects at a distance.

In the first class are the static, organic and kinæsthetic sensations. The sense organs for the static senses are the semi-circular canals, the sacculus and the utricle of the internal ear. These structures are set into activity by any movement of the head or the body as a whole. They inform us of the position of the body, a movement of the body in any direction, and help us thereby to keep balance and equilibrium under any but very unusual conditions. The main conscious experiences which are obtained from the action of these structures are dizziness and nausea. They are mentioned primarily in order to tell the advertiser to avoid any display which will bring on either of these experiences.

While in New York City, during the fall of 1915, the writer noticed an electric sign on Broadway which was a very poor display from this standpoint. The sign was of the variety which gives the illusion of movement. The rate of movement was so fast, however, that it made the chance observer dizzy in a very short time indeed. In fact, the words of the sign could not be read through before dizziness was experienced. Consequently, while the sign had a tremendous attention value, the total impression given by it was decidedly unpleasant.

The sense organs for the kinæsthetic sensations are the muscles and tendons. Tiny nerve endings penetrate down amongst the muscle fibers, and any change in the shape of the fibers, brought about by contraction or relaxation of the muscles, changes the degree of pressure upon the nerve ending. This starts a nerve current and a sensation results, informing us that the muscle has moved or is in process of moving. The particular function of these kinæsthetic sensations will be considered more in detail in connection with the study of centrally aroused sensations.

The organic sensations are those which are received from the organs and structures inside of the body itself. The most conspicuous ones are hunger and thirst. In addition, however, there are many more. All are usually fused together into a mass of undifferentiated sensations which are popularly called feelings. The condition of feeling well, feeling ill, full of vigor, lazy, etc., probably depends upon the group of organic sensations which the individual is experiencing at any time. It is an axiom of experience that a person's disposition is largely dependent upon the efficiency of the digestive organs, and the condition of the digestive organs is reported to the individual by means of the organic sensations.

In the second class of sensations are found the cutaneous and the gustatory sensations. The entire skin

may be regarded as a sense organ for experiencing in different ways objects which come in contact with the body. There are functionally four kinds of end organs which give, when stimulated, sensations of pressure, pain, warmth, and cold. To these may be added certain complexes of sensations, as itching, tickling, contact, and touch.

The tongue is a dual sense organ, giving both gustatory and cutaneous sensations. Of the gustatory or taste sensations there are four kinds, sweet, salt, sour and bitter. Each of these tastes is combined with certain of the cutaneous qualities to give it characteristic differences. Hot coffee tastes different from cold coffee, chicken from veal, and so on, in each case the essential difference being one of cutaneous sensation alone. Practically anything which affects the tongue, however, likewise affects the nose, so that in reality most of the so-called flavors of foods, drinks, and the like are really odors. This may be easily proved by stopping the nostrils and noticing that the flavor of any substance very largely disappears.

In the third class are to be found smell, hearing, and vision — the senses which inform us of objects which are at a distance. Concerning smell there is very little that is definitely known. In the life of the human individual, smells have little significance. Smell words have little place in our vocabularies, for it is very difficult to determine the common characteristics of odors. Consequently odors are named usually in terms of the objects which give rise to them.

The ear is the sense organ of hearing. Of the auditory phenomena there are two varieties, noises and tones. The various complexes make up the sounds with which we are familiar. There are no peculiarities to be found in connection with the facts of hearing which have any particular significance for the advertiser.

Since the appeal to sight is the one which is most frequently made by the advertiser, a more detailed study of vision is imperative. The sense organ is the eye. A detailed account of its structure may be obtained from any physiology. For the present purpose, it is sufficient to know that the eye works like a camera which has a lasting, self-renewing plate or film, the retina. There are two main classes of visual phenomena, colors and grays, or color and brightness. The better theories of color vision assume that there are but four fundamental colors, red, yellow, green and blue, and that by a proper mixture of these it is possible to obtain all other colors. To these should be added two extreme grays, black and white, which, by mixture, are capable of giving all of the intermediate grays.

Colors may differ from each other in hue or color tone, saturation and brightness. By hue is meant simply the name of the color, a mention of the fact that it is red or green. The addition of white to red will not change the color tone, nor will the addition of black, for all of the color which is left will still be red. The fundamental color name is then unchanged. The addition of any other color which is not an exact complementary will change the hue. Thus in mixing lights, red and yellow will give orange.

By saturation is meant the purity of the color, the lack of admixture with any other color. If color is due to the vibrations of the ether, homogeneous wave lengths will give a saturated color.

The brightness of a color is its gray value. It is possible to match any color with a gray in brightness. If a standard series of grays, running from white to black is prepared, it is possible to make measurements of the brightness of a color in terms of the gray series. In this way, relative measurements of the brightnesses of colors may be made. A complete description of a

color may be made in terms of hue, saturation, and brightness.

By mixing two colors together, a third may be obtained. What the third color will be depends upon the hues of those which are mixed, their distance apart in the spectrum, for example. Certain colors, when mixed, will give gray. These are called complementary colors. Considering the spectral colors, yellow and blue are complementary. The following chart, Fig. III, will show the results of the mixtures of the spectral colors, including purple, which is not a spectral color. By mixture is meant the mixture of lights, not of pigments. The results obtained by the two methods are quite different.

In the printing of colored pictures, plates, etc., the mixture of pigments is necessary, so the laws of color mixing have no particular value to the advertiser except in indirect ways. These indirect ways will now be considered.

Contrast. — One of the chief uses which the advertiser may make of the laws of color mixture is to be found in the principles of contrast. By contrast is meant the influence which one color has upon another. It may be illustrated by the following example. If upon a large red surface there is put a small gray patch, the gray becomes tinged with the color which is complementary to the red, namely, green-blue. Likewise, if the large surface is yellow, the color induced upon the gray will be blue or indigo. Contrast is always in the direction of the complementary color. Some time ago a concern had difficulty in obtaining an adequate picture of a refrigerator. The color of the article was white and they wanted to give in connection with it the appearance of purity and whiteness. Many tests failed to obtain a satisfactory result and finally they hit upon the device of printing the picture on yellow paper. It

was then decidedly satisfactory. What they had done was to take advantage unknowingly of the principle of color contrast. The effect of printing the picture on a yellow background was to impart to the white a bluish tinge, very faint, indeed, but sufficient to suggest coldness and purity.

Colors which are in juxtaposition also influence each other in the complementary direction. If red and

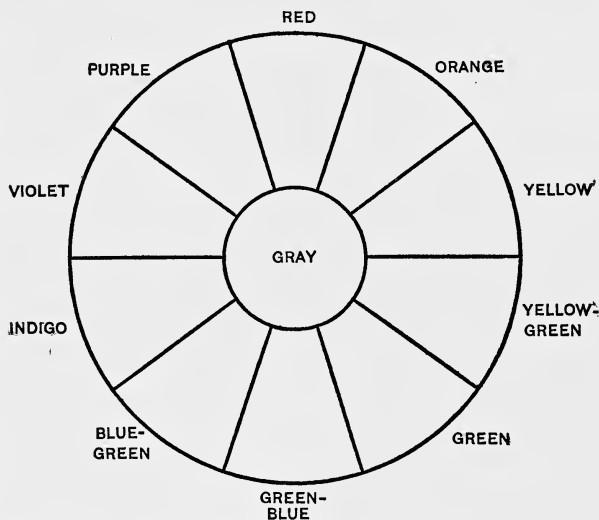


FIG. III. — Showing the color relations. Colors which are exactly opposite each other are complementary and when mixed in the correct proportions give gray. Colors which are not exactly opposite, when mixed, produce an intermediate color on the short arc of the circle.

Adapted from the chart given in Angell's "Psychology," page 135.

yellow are put side by side, the edge of the red which is next to the yellow apparently becomes tinged with blue, and thus appears to be purple, while the contiguous edge of the yellow becomes tinged with green, giving it a yellowish green appearance. If the colors are sepa-

rated by a colorless strip, the contrast effect will disappear.

The same general contrast phenomenon appears when grays are used. White will make black look blacker and black will make white appear whiter.

These sensations, visual, auditory, and the like, are the different kinds of experiences which can be received by an individual from the world in which he lives. But once a sensation has been experienced and the experience has disappeared, the same sensation may be brought back in the form of a memory, or centrally aroused sensation, as it is called technically. It is perfectly possible to think of the smell, taste, and appearance of the cup of coffee which you had for breakfast this morning. This general group of phenomena will be taken up more in detail under the general head of association.

CHAPTER VI

EXPERIMENTS IN ADVERTISING

A PRINTED advertisement is a very complex affair in itself. Not only may advertisements differ from each other in size, shape, color, picture, size and kind of type, and in all of the other features of its mechanical make-up, but they differ also very decidedly in what may be called the subjective features, the appeal which is made, and so on. Not only is this the case, but each advertisement is seen by a large number of persons and is sometimes seen by the same person more than once. No person feels exactly alike on two successive occasions. At one time, the advertisement might appeal greatly to him, at another it might be equally displeasing. Then it must be remembered, too, that no two persons ever are exactly alike. The advertisement which is the most appealing to one might be the reverse for the other. Undoubtedly, climatic and weather conditions influence the efficiency of an advertisement considerably. In addition to all of these factors, the surroundings among which the advertisement appears will have a considerable effect upon its efficiency. So it would seem, off-hand, that the advertiser's problem is too complex entirely to be analyzed into its elements without tremendous waste. The wonder is that the advertiser who has not had a thorough scientific and mathematical training can know anything about his business. But in spite of all this, certain general rules have been formulated.

If it were possible to get accurate and trustworthy returns from each insertion of each advertisement that ever was run by a concern, it might be possible to work out laws. Let us assume that a relatively simple advertisement has, in its make-up, 10 units, size (1), position (2), illustration (3), type of appeal (4), kind of type (5), medium (6), time of year (7), neighboring advertisements (8), financial condition of the country (9), and activity of competing firms (10). If these conditions could be kept the same time after time, the results obtained would indicate a general tendency and a law could be worked out. But vary only one of the conditions and the results would probably show a wide deviation from those obtained under the first set of conditions. Many of the conditions, also, cannot be controlled by the advertiser. Apparently he is more or less helpless concerning the character of the other advertisements which appear on the same and neighboring pages. Neither can he control the weather, the actions of competitors, nor the financial condition of the country. For all of these reasons, the obtaining of exact data by advertisers is a very difficult proposition.

Similarly, the subscription lists of the different magazines differ widely in the kinds of persons which they reach, so it is probable that what would hold for one magazine would not hold strictly for another. Human nature, however, is very homogeneous, men being much alike. They have the same general tendencies, but differ considerably in the particular expression of those tendencies. It should be possible, consequently, to establish the groupings of individuals who are alike in certain respects. It is known that whereas men differ considerably from each other in physical structure, they are still a good deal alike. It is supposed, likewise, that men are mentally about as much alike as they are physically. One of the great difficulties of showing

this mental likeness is the lack of any adequate units of measurement. However, in certain cases, satisfactory units have been developed. In other cases, much valuable data may be obtained by the method of ranking, which will be discussed later. At best, only average values can be obtained. These together with some measure of their variation, shows how much dependence may be placed upon a given measurement.

The ideal scientific situation is the one in which conditions can be controlled so accurately and the material for the experiment can be devised so nicely as to allow of the investigation of only one point or one condition at a time. If one condition is known certainly it is possible to add another to the complex and see what the result of adding the second is. In this way the complexity of the material may be increased very considerably and still substantially accurate results may be obtained.

Since, in the scientific laboratory, it is possible to isolate the various factors one at a time in connection with some of the situations which advertising is supposed to meet, it would appear that many of the problems of advertising can be solved satisfactorily in the laboratory. Of course not all of the problems can be investigated, but enough can be done to reduce the complexity of the whole process somewhat. The final test of the sufficiency of the laboratory method is to be found in the similarity of the results obtained in the laboratory and by the business method. A very considerable degree of correspondence may not be expected to exist between two relatively short tests, either business or laboratory, but tests which cover some little time and various sections of the country, which take place during different seasons of the year and under different climatic conditions, should indicate some degree of correspondence. One drawback is that most of the laboratory tests are performed on relatively small groups of students.

Students represent only one class of individuals, but will some day leave college and university and become an important part of the buying public. The small numbers used should not worry the man who is familiar with statistical methods, for, in a considerable number of the tests which have been made in the laboratories of the country, enough subjects have been employed to show with fair accuracy the representative features of the class of individuals to which they belong.

Since advertising and psychology are related upon several points, attention, perception, association, memory, and action, to say nothing of the others, it would seem plausible that experiments carried out in these fields should be of some benefit to the advertiser.

Many of the problems of attention can be definitely settled in the laboratory. Some which have been worked out are: the attention value of different parts of the page, the attention value of color, of size, of shape, of repetition, of novelty, of pictures, of the different interests, of the size of type, kind of type, borders, and so on. In general most of this work has been done with abstract material, for the more abstract the material is, the more probable it is that the results are not disturbed by any extraneous factors. Usually, repeat tests are made with actual advertisements as the material.

In connection with memory, tests may be made on the effect of the size of advertisements, the frequency of insertion, the position, the type of appeal which is made, the memorability of different kinds of things, and the like.

In connection with association, it is possible to determine how associations are formed most readily, the effect of recency, frequency, primacy and vividness as principles of connection and the relative strength of the forward and backward associations.

In perception, it is possible to ascertain the effect of the surroundings on the same page and the opposite page, to determine the effect of the previous insertions of advertisements of the same commodity, to deal with the factors involved in reading and the legibility of different sizes and kinds of type.

In connection with the æsthetic principles, it is possible to work out the facts of color preference, color harmony, preferred shapes of figures, balance, harmony, proportion, and the like.

When it comes to investigating the action side, there is considerably more difficulty. With three possible exceptions, there is no test which it is possible to perform in the laboratory, the results of which can be transferred bodily to advertising situations. Certain very elaborate situations might possibly be provided which would work out certain relations, but such are impracticable from the standpoint of most laboratory appropriations.

One experiment which sheds some light upon volition and action is the reaction time experiment. If it is assumed that in certain cases the reader of the advertisement has mentally assented to the purchase, intends to make it, his condition is very much like that of the man who is serving as subject in the reaction time experiment. In this way, the relations between the promptness and strength of response and the size, intensity, frequency, and duration of the stimulus may be determined.

The other experiment consists in having a series of advertisements of the same commodity arranged in *order of merit* by a large number of persons, the standard being the persuasiveness of the advertisement, or its power to make the individual buy the commodity. That advertisement which is ranked the highest on the average by the subjects is then said to be the best advertisement from the standpoint of sales.

The objections to this procedure are given below :

In the first place, the experimenters have in very few instances compared the laboratory results with the business results. The idea of this comparison is, of course, to show the dependability of the method as a laboratory technique for investigating advertising problems. One thing which has been done is to compare the order as determined by the laboratory experiment with the order as determined by the opinion of certain selected advertising experts, who were practically put through the same experiment. Since Dr. E. K. Strong, Jr., was one of the first to apply this method to the psychology of advertising, a quotation from one of his articles will be appropriate in bringing out the point. "It is scarcely necessary to repeat that the results of the Packer Manufacturing Company are not based upon carefully compiled data, but only upon the judgment of the firm based on their business experience. Any one familiar with advertising knows that such data have not been compiled for any extensive set of advertisements, let alone a series of fifty extending over twenty years of service. If such data did exist, they could not be used at their full face value, as an advertisement of twenty years ago might have been very effective then and be out of date to-day.

"The order of the twenty-five subjects correlates plus .52 with the order of either of the two advertising experts. The correlations between the orders of the two advertising experts is plus .64. These relationships are lower than those which have been obtained with other sets of advertisements."

"It is evident, then, that the 'order of merit method' does give results that correlate high with results obtained in business."¹

Since by results obtained in business, Strong must

¹ Strong, *Jour. of Phil., Psy., etc.*, VIII: pages 603, 604.

evidently mean, in the above connection, the opinion of advertising experts, another quotation taken from the same writer, but in a different article, will be especially interesting. "At the present time there is no way of estimating which are the good and which are the poor advertisements except on the basis of personal judgment; and when the reviews and criticisms of different advertising men are compared, it is apparent that this personal judgment is to-day a very variable factor."¹

The second quotation robs the first of whatever force it might originally have had.

In order to be of any particular value, the correlation between the business test and the laboratory test must be worked out with actual business returns. These are obtainable for but few kinds of commodity, since they depend upon elaborate systems of keying. In order to have the keying satisfactory, all orders must eventually come to a head office, labeled in such a way that each advertisement may receive full credit for its work. Such a thing is an obvious impossibility with such products as soaps, foods, and in general those things which are procurable at stores.

The advertisements which can be accurately keyed are ordinarily mail order propositions. With any adequate system of checking returns, it is possible to figure out from keyed advertisements the following things: the average number of inquiries per insertion, the average cost per inquiry, the total number of sales, the profit or loss. Some of these returns obviously depend upon other things than the advertisement itself, but it was the advertisement which started the whole process going.

Which of these is the fairest measure of the pulling power of the advertisement? The number of inquiries

¹ Strong, *Jour. Ed. Psy.*, IV : page 393.

indicates the number of persons who were influenced sufficiently by the appeal to be incited to action. A weakness of this method is that the position of the advertisement on the page¹ or the position of the page in the advertising section of the magazine may be detrimental. The same advertisement in some other position might have "pulled" many more inquiries. Again, the time of year is a very important matter. There are good seasons and bad seasons.² General economic conditions, national or sectional eras of prosperity, are also modifying factors.

It seems obvious that the natural procedure in such cases would be to repeat the advertisement enough times in different parts of the magazine and at different times selected to take account of seasonal differences and so on. The objection is that with successive appearances of the mail-order advertisement there is a fairly constant and regular decrease in the number of inquiries.³ However, if enough advertisements were used in this way, either the total or the average number of inquiries would be a sufficiently satisfactory measure of the pulling power of the advertisement. It is, in fact, the only obtainable measure of the pulling power uncomplicated by other factors.

A second possibility is the average cost per inquiry. This method is open to all of the objections noted above,

¹ Starch, "Advertising," pages 106-116.

² Shryer, "Analytical Advertising," pages 167-170. Shryer says, on page 169: "As a whole, however, it may be said that the three *largest* months of practically every year are January, February, and March."

See also Starch, "Advertising," page 50. The table at the bottom of the page shows that, for the commodity mentioned, more advertising was run and more sales were made during the first half of the year than during the last half. Another table, given by Starch on page 93, indicates that the most advertising is carried in May and December; the least in January and August.

³ Shryer, "Analytical Advertising," pages 81 ff., pages 220-223. Starch, "Advertising," pages 170-179. Strong, *Psy. Rev.*, XXI: page 147.

and to a still further one. The actual cost of the space occupied by the advertisement does not in any way directly affect the excellence of the advertisement itself. Even in the same medium, the charge per page is liable to sudden shifts. It is unfair to the advertisement to make it suffer the handicap of the increased rate. The amount charged per page is not an accurate measurement of the circulation of the medium and so an approximation of the number of persons who may read the advertisement.

The number of sales is obviously unfair, for we have to do there not only with the advertisement itself, but with the goodness or badness of the follow up system, the efficiency of salesmen, etc. Some of the blame may be laid to the advertisement, for it may have been constructed in such a way as to have interested many who could not possibly have bought that line of goods. Or they may have been misled by the advertisement and when they found out what the product was from the follow up system, they lost interest.

The question of profit or loss resulting from the use of a certain advertisement, while of considerable interest to the business man, is still not a test of the pulling power of the advertisement, but is a measure of the pulling power as modified by the cost of the advertisement and the adequacy of the follow up system.

Taking it all in all, the average number of inquiries per insertion seems to be the fairest test of the actual pulling power of the advertisement. It is, then, the measurement which should be used in endeavoring to obtain the correlation between the orders of the business test and the laboratory test.

Another criticism of the order-of-merit method as it has often been used is on the ground of the number of subjects employed or the number of tests made. Obviously, if relatively few additional tests will change

the order of the advertisements in the series, the experiment is unfinished. It appears that the number of tests necessary depends upon at least two factors. In the first place, the actual amount of difference in terms of judgment steps between the contiguous advertisements in the series is an important consideration. With advertisements far apart, where the judgment is easy to make, the order will be established with relatively few subjects. But as the judgments become more and more difficult, an increasing number of tests will be necessary. Secondly, the number of advertisements in the series will be a determining factor. For as the number of advertisements in the series is increased the judgment steps must necessarily decrease, thus rendering a satisfactory arrangement more difficult.

Shryer,¹ who was the first to use any considerable number of persons in an advertising experiment, employed a total of 508 in his efforts to reach practical certainty. In the most complex of his experiments, in which the method of paired comparisons was used, the final order was obtained at the 300th trial. The addition of 200 more subjects left the relative order of the advertisements in the series unchanged. In this experiment he used but five different advertisements. Had he used more than 5, 10 for example, he probably would have had to employ a great many more individuals before obtaining a satisfactory final order. To be sure, his material was such that there was a great chance for variability of response, but this is true of practically all experiments carried on in the field of advertising.

The next point to be considered is whether the order-of-merit method can be used to determine the relative pulling power of a series of advertisements. Before considering this point theoretically, we may repeat that

¹ Shryer, "System," XXV : page 146.

the experiments which have been designed and carried on to test the correlation between the laboratory and the business test have sometimes shown correlations as high as $+1.00$ and sometimes as low as -0.60 . It would seem, then, that sometimes the method will work and sometimes it will not.

The instructions usually given in the experiment are "Sort these advertisements according to the order in which *you* would *buy* the . . ." That means that every individual who performs the experiment makes a definite arrangement of the advertisements, the order showing the persuasiveness as far as he is concerned. The assumption is that from his arrangement of the advertisements, it is possible to tell which one made him buy the article, for each one experimented upon is evidently regarded as a purchaser. There is, unfortunately, no way of telling which of the persons experimented upon would, in actual life, be sufficiently interested in any of the advertisements in the series to make him purchase the commodity.

In business, the situation is quite different. The figures quoted from Shryer on page 12 indicate that on the average the inquiries are 1 per cent of the circulation of the magazine. It has been estimated that 5 persons read each magazine. There is, then, a possibility that the advertisement will be seen by 500,000 persons if the circulation is 100,000. The estimates of the number of persons who see the advertisements varies from 10 per cent to 50 per cent of the readers of the magazine. If we take the lower limit, 10 per cent, that means that 50,000 will see some of the advertisements. The proportion which will see a particular advertisement is pure guess work. As a working basis, we will take 20 per cent. That means that 10,000 will see the advertisement, and a thousand will be sufficiently interested in it to reply, or 10 per cent. A great many

of the other 90 per cent who do not inquire are almost interested enough to do so, still more are slightly interested, others are indifferent, while still others get a negative reaction. Therefore, the results obtained from the mail-order business test are got from a very small percentage of the total number of readers. The results obtained from the laboratory test are arrived at by using the results of the whole 100 per cent of readers, instead of the 10 per cent who might on the average be interested enough to answer the advertisement. The using of the other 90 per cent of the persons introduces factors into the experiment which would quite certainly modify the results so that they would not adequately express the normal results for the 10 per cent. If there was only some way of determining, in the laboratory experiments, the individuals who make up the 10 per cent who are sufficiently interested, we probably could arrive at fairly dependable results.

It must be kept in mind that a mail-order business appeals at best to a very small number of persons. The same general situation exists, also, with regard to the more expensive commodities, such as pianos and vacuum cleaners. Such advertisements certainly appeal to a very small and select class. Consequently, it is doubtful if adequate experiments could be performed upon advertisements of these commodities in the laboratory. The advertisements of the cheaper, more frequently used goods, such as foods, soaps, etc., very probably could be tested adequately if there were any way of determining accurately the actual business returns.

Lastly, it is extremely doubtful if the great majority of individuals can tell which of a series of advertisements would be most likely to make them buy the advertised product. It is very much like asking a man what he would do if his house burned up in the night. The measurement of impressions in relative terms offers

considerably less difficulty, as has been demonstrated in the experimental work upon sensation, æsthetic judgments, and so on. Predicting probable conduct is a much more hazardous matter. It is extremely improbable that we can really tell what we will do under a hypothetical condition unless we have developed a very definite habit for meeting that situation. Then the chances are that we will have two or more habits which are about equally serviceable. Unfortunately for the advertiser, a considerable percentage of the readers of advertisements have formed the habit of appreciating advertisements and seldom if ever responding.

✓ The reading of advertisements has become a fixed habit with many persons, not because they expect to buy anything, but because the advertisements are an essential part of the enjoyable features of the magazine. They are looked at for æsthetic appreciation, they are looked at for news value, for they give information concerning the industrial activities of the country which could never be found in the body of the magazine.

The general conclusion which we seem forced to accept is that the order-of-merit test is not a very adequate laboratory method of testing the business value of advertisements. Where it is possible to obtain accurate business measurements, the laboratory test, using students as subjects, appears to be quite inadequate. Where it is impossible to secure accurate business measurements, the laboratory test may be adequate. There is no way of telling.

CHAPTER VII

STATISTICAL METHODS

A PROBLEM of some importance is what to do with the results obtained from an experiment or from actual advertisements, once they are secured. For if the individual knows nothing about working up such results, his time is very largely wasted.

Almost all of the measurements of either physical or mental sciences are based on physical analogies. To most, purely physical measurements offer no difficulty. It is assumed that any one can weigh a piece of rock or measure a piece of cloth. It is suspected by few that if delicate enough instruments are used, the weight of the same piece of rock, determined time after time by the same scales, will seldom be twice exactly alike. In exact physical tests, it is necessary to weigh the same object several times and obtain the true weight by averaging the results of the different measurements. Likewise, in making less tangible measurements, as for example, judging the relative weight of several pieces of rock, we find that there is a very considerable variability. It will be found, however, that in most cases, a majority or at least a plurality of judgments will be either identical or grouped very closely together. An example will make this clear.

If four weights, all of the same size and visual appearance, weighing respectively 45, 47.275, 49.50, and

52.20 grams, are presented to a person and he is asked to arrange them in the order of their heaviness, the following table results:

NUMBER OF WEIGHT

	1	2	3	4
Order	2 1 1 1 1 1 1 2 1 1	1 2 2 2 2 2 2 1 2 2	3 4 3 4 3 3 4 3 3 3	4 3 4 3 4 4 3 4 4 4
Av. =	1.2	1.8	3.3	3.7

In this way, it is possible to determine the relative position of a number of weights in a series, and for determining the order of heaviness, the objective balance is unnecessary. Also, by the use of proper formulæ, it is possible to change measurements of relative position into measurements of amount. This method has proved to be very useful in measuring series where it was impossible to obtain definite units in terms of which the measurements might be made, such as the legibility of handwriting, the humorousness of pictures, the pleasingness of colors, the persuasiveness of advertisements and the like.

Let us compare the results obtained by this method of arriving at the relative weights of certain substances with another experiment devised to determine the relative persuasiveness of a certain set of advertisements. The series consisted of 4 half page advertisements of the American Collection Service. These advertisements were

Dividing the sum of the products, 296, by the total number of times some position was assigned to the advertisement, 161, we obtain 1.84, the average, exactly the same number that was obtained by the longer and more cumbersome process discussed above.

The results for the entire series of four advertisements will now be given.

POSITION	A	B	C	D
1	71	67	16	7
2	55	41	42	23
3	25	40	56	40
4	10	13	47	91
Average	1.84	1.99	2.78	3.33
Order	1	2	3	4

Instead of using the average to represent the central tendency, it is possible to use either of two other measures, the mode and the median. The mode is that quantity which occurs most frequently. In the above case, the mode with advertisement A is 1, for that is the value which is given it most frequently. With B, likewise, 1 is the mode, but since the total number of times 1 occurs with B is less than with A, A must be ranked higher. With C it is 3, and with D, 4. Consequently, if we use the mode as the measure of the central tendency, we obtain exactly the same order that we did when the average was used.

The other measurement used to represent the central tendency is the median. If the entire series of judgments is arranged in order from highest to lowest, the value of the judgment which occupies the exact mid-point of the series is called the median. In the above case (the formula is median equals $\frac{n+1}{2}$), the total number

of judgments was 161. If we count 81 in either direction, either from the beginning, or the end, the 81st value will be the median. With advertisement A, the 81st value will lie somewhere in 2, for 1 occurs 71 times. The median will be, then, the 10th value in 2. The 55 choices which 2 received in connection with this advertisement may be thought of as extending between 2 and 3. The first is considered to have a value of $2\frac{1}{5}$, the second $2\frac{2}{5}$ and the last, $2\frac{5}{5}$ or 3. The 10th value in 2 would therefore have a value of $2\frac{9}{5}$ or 2.182. The central tendency as determined by the median gives the same order as the values obtained by using the average and the mode, A being first, B second, C third, and D fourth.

"The following . . . characteristics of the different measures of central tendency may help to decide which is the best to use in any given case :

"The crude mode is the most easily and quickly determined. It is not so reliable a measure as the others. That is, the actual mode obtained from a given number of cases will not be so near the true mode as will the actual averages to the true average. It is hardly at all influenced by extreme measures or erroneous measures. It is unambiguous and does not mislead a reader into thinking that all the individual measures of a group are very closely near it.

"The median is more easily determined than the average. It is not so precise as the average, is very little influenced by extreme or erroneous measurements, and is unambiguous.

"The average is determined more precisely than the crude mode or the median because the amount of every measure plays a part in determining it, but for this very reason it is more influenced by extreme or erroneous measures. The average is the measure in common use and has the advantage of being a familiar term, and at the same time the disadvantage of leading untrained

readers to think that the abilities of which it is the average are closely clustered about it.

"If the measures of an individual are not in terms of amount, but are simply a series ranked in relative position, the only measures of central tendency available are the mode and median."¹

In addition to obtaining the central tendency of a set of measurements, however, it is advisable to find, in addition, a measure of the variability of the measurements. This shows whether the subjects are well agreed, or whether there is a considerable amount of disagreement in their judgments. As there were several measurements of the central tendency, there are also several measurements of the variability of the series of measurements.

The first is called either the Average Deviation (A.D.) or the Mean Variation (M.V.). To obtain this, the average is subtracted from each of the measurements which went to make up the average, disregarding signs and the results added. This sum is then divided by the number of terms. In the case given above, in connection with advertisement *A*, the average is subtracted from each of the 71 ones, from each of the 55 twos, from each of the 25 threes, and from each of the 10 fours. The sum obtained by adding all of these values is divided by 161 and the result is the A.D. It is possible to use the same short-cut method that was described to determine the average. It works as follows :

POSITION	NUMBER OF CHOICES	
1	71	$.84 \times 71 = 59.6$
2	55	$.16 \times 55 = 8.8$
3	25	$1.16 \times 25 = 29.0$
4	10	$2.16 \times 10 = 21.6$
Average . . .	1.84	119.0

¹ Thorndike, "Mental and Social Measurements," pages 38-39.

The sum of the differences, disregarding sign, is 119. The A.D. is $119/161$, or .74. The average deviation may be determined in the same way by subtracting the terms in the series from either the median or the mode.

Another measurement of the variability of a series is the Mean Square Deviation or the Standard Deviation as it is sometimes called and which is usually represented by the small Greek sigma (σ). The formula is S.D. = the square root of sum of the differences squared / the number of cases. $S.D. = \sqrt{\frac{\sum d^2}{n}}$. It is determined, in the case of advertisement A, as follows. The average was 1.84. Where the value 1 occurred, the difference is .84. The square of this is approximately .7056. 1 occurred 71 times, so the decimal .7056 should be added together 71 times or multiplied by 71. Likewise for the other values, as will be shown in the following table:

POSITION	NUMBER	D	
1	71	.84	$.71 \times 71 = 50.4$
2	55	.16	$.025 \times 55 = 1.38$
3	25	1.16	$1.35 \times 25 = 33.7$
4	10	2.16	$4.67 \times 10 = 46.7$
Average . . .		1.84	142.18

The S.D. is the square root of $142.18/161$, which is approximately .94. The S.D. is usually greater numerically than the A.D. On the average, for results which lie along the normal surface of frequency, the S.D. is 1.25331 times the A.D., or put the other way round, the A.D. is .7979 S.D.

A third measure of the variability of a series is called the Semi-Interquartile-Range, or half the measure be-

tween the 25 percentile measure and the 75 percentile measure. It is half the distance from the median to the beginning of the series and half the distance from the median to the end of the series, divided by 2. In the case of advertisement *A*, the median was the 81st value. The upper quartile would be then the 41st value, and the lower quartile would be the 121st value. To show how to obtain it, the table is given again.

POSITION	CHOICES	POSITION	CHOICES
1	71	3	25
2	55	4	10

The 41st choice has a value of 1 plus. It is 1 plus $41/70$ or 1.585. The lower quartile, or 121st choice, is 2 plus $50/54$ or 2.926. Half the difference between 1.585 and 2.926 is .671.

One of these expressions of the variability of the series should always be used with any series of measurements where it can be applied. Only one, however, need be given. The one which shall be used is a matter of practical indifference, much depending upon the ease of computation.

As we have seen, S.D. expresses the amount or degree of scatter of individual variates about the average. The formula $S.D./\sqrt{n}$ gives the standard deviation or scatter of the numerous values of the average derived from many experiments like the one mentioned above. It can likewise be shown that 50 per cent of these various possible averages lie within the limiting values which are greater or less than the average of these averages by 0.6745 S.D./the square root of n . This expression, plus or minus 0.6745 S.D./square root of n , is known as the probable error, *E*, of the average. There are even chances that

an average obtained from another experiment with the same material will lie within the limits of average plus or minus E. Since the A.D. is approximately .7979 times the S.D., we may substitute A.D. for S.D. in the above formula, making it read approximately $0.8453 \text{ A.D.} / \text{square root of } n$.

Using these formulæ to test the validity of the experiment mentioned above, we find the following condition to exist:

POSITION	A	B	C	D
1	71	67	16	7
2	55	41	42	23
3	25	40	56	40
4	10	13	47	91
Average . .	1.84	1.99	2.78	3.33
A. D. . . .	.74	.82	.81	.75
E. . . . .	.049	.055	.053	.050

These figures show that the average of A might have risen to 1.889 or fallen to 1.791 in half of the other tests made with the same set of advertisements. B likewise might have risen to 2.045 or fallen to 1.935. This means that with further tests, the order of A and B might have been reversed though the chances are better than even that it would not. C and D are, however, pretty well established in third and fourth places respectively. In order to determine how many tests would have been necessary to establish a permanent ranking for A and B, we may use the following method. The number of cases, or n , does not affect the A.D. provided the distribution is normal, so we may assume that further tests would give approximately the A.D.'s which were found in this test. The thing which must

be done, then, is to obtain an E which shall be less than half the difference between the averages of A and B . The difference in the averages is 0.15 . Consequently an E of $.070$ would have established the order. The A.D. is approximately constant, so the change must be brought about by increasing the value of n . If $\sqrt[3]{n} = 9.2$, $n = 85$, and the E for A and B becomes 0.067 and 0.075 respectively and the lowest value for A 1.907 and the highest value for B 1.915 , in which case A is still in first place and B in second place, and the order may be said to be established. In common practice, it is considered that a satisfactory final order has been determined when the averages are separated by amounts greater than $3 E$.

In making several tests with the same material, it is often desirable to know the degree of similarity or difference which exists in the results. The four advertisements mentioned above, for example, had appeared in magazines, and the number of inquiries resulting from each was known. They were then used in the laboratory test. The idea was to find out how much alike the order as determined by the two kinds of tests would be.

The mathematicians have figured out several formulæ which may be used as a measure of the likeness or differences of two orders, or two series of results. The result, which is called the coefficient of correlation, or r , ranges in value from plus 1 to minus 1 . If the two series are exactly alike, the result of solving the equation is $+1$, if they are exactly opposite, it is -1 , while if there is simply chance agreement, the result is zero. One very common formula which is easily handled where the series are not too long is the following: The coefficient of correlation, or r , $= 1 - [6 \sum (d^2) / n(n^2 - 1)]$. It so happened that the order of value in the two tests referred to above was the same, consequently, $r = +1.00$.

For illustration, some of the possible variations will be worked out. Let us suppose the order as determined by the business test was A, B, C, and D as respectively in places 1, 2, 3, and 4. Let us suppose that the results of the laboratory test were to give A second place, B first, C fourth, and D third. Writing them in perpendicular columns, together with the necessary mathematical computations, the following is obtained.

AD. NO.	RANK (1)	RANK (2)	D ²
A	1	2	1
B	2	1	1
C	3	4	1
D	4	3	1
$n = 4. n(n^2 - 1) = 60$			$4 \times 6 = 24$

$r = 1 - 24/60 = 1 - .4 = \text{plus } .6$. With those two orders, the coefficient of correlation is plus .600. If we invert one order as compared with the other, the following will result:

AD. NO.	RANK — 1	RANK — 2	DIF. SQUARED
A	1	4	9
B	2	3	1
C	3	2	1
D	4	1	9
$r = 1 - 120/60 = 1 - 2 = -1.00$			$20 \times 6 = 120$

By use of this formula or others which have been worked out to obtain the coefficient of correlation, it is possible to obtain an exact mathematical expression of the degree of likeness or difference of two measurements. This is particularly valuable in comparing the

results of laboratory tests with the results obtained in actual business.

It sometimes happens that two sets of figures are not directly comparable, yet it is desirable to know whether they represent the same tendency. For example, the returns from two different magazines might be as follows :

	INQUIRIES FOR		
	Quarter	Half Page	Full Page
Magazine A . . .	49	72	109
Magazine B . . .	63	101	143

The simplest way of determining this point is to reduce both sets of figures to ratios, calling the number of inquiries for the quarter page, 1.00, and reducing the other values to corresponding terms. When this is done, the following table is obtained :

	QUARTER	HALF	FULL
Magazine A . . .	1.00	1.46	2.22
Magazine B . . .	1.00	1.60	2.27

This method of considering the results shows that the two tendencies are very similar. Results worked out by the ratio method are directly comparable and show many relations which could be determined in no other simple way.

CHAPTER VIII

ATTENTION

MOST, if not all, of our sense organs are being stimulated during the greater part of our lives. The result is that we are conscious of a considerable number of things at the same time. At any particular instant some one sensation, or perception, or idea somehow arouses more consciousness than any of the rest. This fact, that one idea is selected and emphasized in consciousness, is called attention.

In order to understand attention with any degree of thoroughness, it is necessary to consider its nervous basis; namely, what is going on in the nervous system when we are conscious of anything or are attending to anything.

We have said that most of our sense organs are being stimulated all of the time. The result of the stimulation is to transfer energy from the outside world to that part of the nervous system which is especially adapted to receive impressions. The energy is carried in the form of a nerve current to the brain. The cell bodies of the neurones which are on the outside of the brain, called the cortex, are set into activity by the nerve currents which come into them. But it may be assumed that not all are set into equal degrees of activity. Some sense organs are receiving more energy from the outside world and consequently have more to pass on to the cortical cells. It is possible, then, to picture the entire

cortex of the cerebrum as active not the different parts active to different degrees. We assume that a certain amount of brain action is necessary to produce consciousness. For purposes of reference, this may be called the zero point. It is probable that some of the nerve impulses are not strong enough to produce in the cortex even this zero point of activity, consequently they do not arouse consciousness. The region which is receiving the greatest sum total of nerve energy is more active than any of the other regions. This maximum of activity corresponds to attention. Between the maximum region and the zero point are to be found all degrees of moderate action. The moderate action corresponds to consciousness. Such a description being necessary for the understanding of attention, we may now analyze attention in detail.

The first problem that arises is concerned with what happens to that idea, sensation, or perception which is attended to. The answer has occasioned considerable psychological controversy. We may, however, be sure of the following things:

1. Attention makes the process attended to more clear and distinct in consciousness. Attention is often referred to as the focus of consciousness. This is merely a figurative way of saying the process attended to becomes more clear. If an opera glass is not correctly focused, everything seen through it appears more or less blurred. When it is focused properly, the objects seen appear to be clear, distinct, and sharp-cut. In the same way, things of which we are merely conscious tend to be more or less indistinct, whereas things we are attending to are clear, sharp-cut, and well-defined. The information, then, which we receive from an object attended to is very much more definite and distinct than the information received from the object of which we are merely conscious.

2. It is sometimes stated that the object attended to becomes more intense, though several authorities disagree with this statement. At any rate, it seems safe to say that ordinarily there is some intensification of the process due to attention.

3. It has again been stated that the process attended to stays longer in consciousness than it otherwise would. This conclusion is not based upon experimental evidence, but on introspection pure and simple. If it is agreed, however, that attention is correlated with the maximum amount of activity in the brain, it would seem that owing to the inertia of the brain cells, a process attended to should endure longer than one which does not arouse so much commotion in the cortex.

4. Attention aids memory. Should the object not be attended to, it is very soon forgotten, if remembered at all. Recognition, an essential part of the memory process, is impossible. If the object is attended to, it will be much more likely to be recalled and recognized at some later date. As a matter of fact, retention runs closely parallel to the degree of attention at the time the impression is received.

5. The process attended to rises more quickly in consciousness than others which are experienced simultaneously with it. "It has long been noticed, when expectant attention is concentrated upon one of two sensations, that the other one is apt to be displaced from consciousness for a moment and to appear subsequently; although in reality the two may have been contemporaneous events. Thus, to use the stock example of the books, the surgeon would sometimes see the blood flow from the arm of the patient whom he was bleeding, *before* he saw the instrument penetrate the skin. Similarly the smith may see the sparks fly, *before* he sees the hammer smite the iron, etc."¹ To be

¹ James, "Principles of Psych.," I: page 409.

sure the amount of difference is not very great, seldom being more than 0.1 second.

6. Attention is at the basis of every voluntary act. On the average, the greater the amount of attention, the more promptly the act results. This has been indicated in the experiments on reaction times. In this test the individual is asked to make a responsive movement as soon as possible after a stimulus is given. When the subject is not warned, the reaction takes roughly twice as long as it does when he is warned that it is about time for him to make the movement. The only effect of the warning signal is to give him a chance to concentrate his attention on the signal or on the response.

Summing up the material so far presented, it may be said that attention is really the front door through which impressions from the outside world enter the mind. Because they do enter by the front door, they are received with more consideration, stay longer, and produce more of an effect while there.

Two other preliminary questions must be settled before we ask why we attend. The first of these has to do with what is called technically the range of attention, or the number of things that we can attend to at once. This question must not be confused with another similar one, namely, the number of things we can do at once. The latter is purely and simply a matter of habit. We can do as many things at once as we have smooth-running habits, which do not conflict.

It has been stated by psychological authority that but one thing can be attended to at a time. Experiments then go on to prove that it is possible to grasp mentally four or five isolated dots, five organized groups of five each, and so on, so that the actual number of things which can be attended to at once is a matter of dispute. It seems to be impossible to call one thing **five things** and twenty-five things one thing. There

are, however, two ways of getting around the difficulty. In the first place, it must be remembered that the sense organs and the brain possess an inertia of their own. It takes them some time to be set going by an external stimulus, and the nerve activity continues for some little time after the stimulus is removed. This is due to the physical principle of inertia. So that even if the dots are seen for a very short time, $\frac{1}{50}$ to $\frac{1}{100}$ of a second, the nerve action continues for some little time afterwards, long enough at any rate to allow the different dots to be attended to, each by a separate act of attention. It may be concluded, then, that only one thing, either simple or complex, can be attended to at one time.

The next problem is, how long can we attend to this one thing without change? The answer usually given is that we can attend to one thing for three to six seconds, and then attention must shift to some other object or process. It may be objected that we can attend to one thing for a long period of time, as for example, a lecture, a book, an athletic contest, and the like. A little analysis will show that, while from one standpoint these may be considered as one thing, really they are complex things, being made up of a large number of simple elements. It is to these simple things that we attend, one after another. Or if we ever do attend to one simple object for any length of time, it is because we are regarding successively its different phases.

There are in the main three theories to account for the fluctuation of attention, as this phenomenon is called. All three need to be combined to give a really adequate explanation. It is probable that the sense organs, by constant exposure to the stimulus, become fatigued, and so incapable of sending a maximum amount of nerve current to the brain. Secondly, the cells in the brain become fatigued, and so are incapable of being aroused to a full degree of activity. This results in

decreasing the total amount of activity in that portion of the cortex and so causes a cessation of attention to the object. Thirdly, it has been found that the periods of the fluctuation of attention are of about the same duration and coincide with certain physiological changes known as Traube-Hering waves. These waves are really fluctuations in the amount of blood pressure. When there is a decrease in the amount of blood pressure, attention wanes. It may be stated in addition, since from the biological standpoint attention is merely an adjusting process, that once the adjustment is made, there is no need for attention to concern itself with that object any longer, but that it should go and take care of some other process which needs adjustment.

The next point that demands consideration is the problem of why we attend to certain things rather than certain others. It is assumed that there are three general sets of laws which determine the direction of attention. The stimulus itself, because of intensity, may absolutely pull attention toward itself. Other things are attended to because they are interesting; while still others receive our attention because we think that we ought to attend to them. It is a question of duty.

I. By objective factors we mean those characteristics of the stimulus which attract attention to them even in spite of effort. These characteristics are as follows: position, intensity, size, duration, frequency, change, and motion.

1. *Position*. — It is comparatively easy to determine where the attention will first alight upon a page of any given size and arrangement, provided the conditions are the same time after time. But for the reader of advertisements, the conditions are seldom twice alike. Whether he is turning the pages from the front towards the back of the magazine or in the opposite direction is one factor which has a determining influence.

Other conditions, such as size, color, intensity, illustrations, interest incentives — all of these undoubtedly have some bearing on the problem.

The investigation of the preferred position on the page has already attracted Gale.¹ That his results are more or less untrustworthy is proved, however, by the make-up of some of the most successful advertisements which are running in the current magazines.

Gale found that the left side of the page had a considerable advantage over the right side. As regards the horizontal divisions of the page, he found that the men showed a preference for the third quarter, or that region just below the mid-line of the page; whereas the women saw the second quarter, just above the mid-line, with greater frequency. Averaging his results for both men and women, the second quarter was found to arrest the attention most often, the third next, the top of the page third, and the bottom last.

This experiment is open to several criticisms, which all eventually reduce to one; namely, that he did not endeavor to duplicate advertising conditions. His letters and words were pasted on sheets of cardboard which were held in position before the subjects. In a part of the experiments, the apparatus was placed in a dark room and the subject could see the letters and words only when the card was momentarily illuminated by a spark of electricity. In the other part of the experiment, the subject saw the words only when a diaphragm was opened momentarily. In neither case was there anything to fix the boundaries of the page for the subject, who could only look straight in front of him and trust to luck to obtain a glimpse of the words. The probability is, therefore, that the persons would look at that place where they supposed the middle of the page to be. This would explain why his subjects so generally saw

¹ Psy. Studies from the Univ. of Minnesota, pages 51 ff.

the words just above or below the middle of the page. The superiority of the left side of the page he explains as being due to the universal tendency to begin fixations in reading at that position, and he is probably correct. His experiment, then, does not duplicate advertising conditions; and his conclusions must be taken with the proverbial grain of salt.

Realizing the inadequacy of the previous tests, it was decided to test the question under conditions which conformed more nearly to those met in actual advertising.

The material for the experiment was prepared as follows. Ninety-two cards of the size of the standard magazine advertising page were marked off into rectangles of larger or smaller size to represent the different divisions of the page. In the center of each rectangle was mounted a small capital letter. To represent the full page, the cards were divided into fifteen rectangles of equal size, three horizontally and five vertically. The eighth page was made up of two rectangles across and four up and down. The quarter page was represented by two rectangles across and two up and down. The half page was considered in three ways; first, with the horizontal division in the middle of the page, second with the perpendicular division in the middle of the page with letters in the upper left corner and the lower right corner, and third with the perpendicular division with letters appearing in the upper right and lower left corners.

Care was taken to put no letters which looked alike on the same card, and on different cards the same letters were used but put in different positions so that any differences of intensity, novelty, familiarity, and the like would be compensated in the totals.

These cards were put into a modified book and shown to the subject one at a time. The modified book con-

sisted of a drawing board on which was placed a holder for the cards. Over the holder and hiding the cards was a heavy cover which swung on hinges. This corresponded indifferently either to the cover of the book or to a page which was hiding another one underneath. Opening and closing it allowed the exposure of the card underneath for any desired length of time. It was thought that this method approached the actual advertising conditions much more closely than instantaneous lighting with an electric spark.

Each card in the series was shown for approximately half a second, and the subject was instructed to write down all the letters which he remembered having seen, in the order in which they came into his consciousness. In the major portion of the experiment, the cover of the modified book was turned in such a way that it represented a right-hand page seen when turning the pages from front towards the back of the magazine. Other tests were made, however, which duplicated the appearance of the left-hand page when going in the opposite direction. A total of 149 subjects was used in the course of the experiment.

RESULTS

1. The Span of Attention.

If we prepare a table showing the percentage of times some position on the 15-division page was seen first, second, third, fourth, and so on, and then do the same thing for the other page divisions, we obtain the following :

SEEN	1st	2d	3d	4th	5th	6th	7th	8th
15 divisions	100.0	99.0	89.7	50.3	30.1	16.3	3.3	0.9
8 divisions	100.0	95.8	83.7	55.8	11.7	6.5	0.3	0.0
4 divisions	100.0	98.7	72.7	50.3				
2 divisions	100.0	96.6						

Under the conditions of the experiment, some position on the page is practically sure of being seen. With the 15-division page, some second place is seen 990 times out of 1000, a third place 897 times out of a thousand and so on. Inverting our proposition, we find that but one thing on the page is seen 10 times out of every thousand, but two things are seen 103 times out of a thousand, only three things are seen 497 times in a thousand, the chances growing increasingly less with great rapidity. The obvious moral is that if a thing is not noticed almost immediately it has a very poor chance of being seen at all.

Whether the card is divided into 15, 8, 4, or 2 parts affects the relative number of times that some position on it is seen either second, third, fourth, etc. In general, we find, as we might expect to, that the more there is to be seen the more we see.

If we now throw into a table the average number of letters seen for each of the page divisions, we obtain the following :

PAGE ARRANGEMENT	AVERAGE NUMBER OF LETTERS SEEN
15 divisions	3.88
8 divisions	3.41
4 divisions	3.22
2 divisions	1.96

This table shows that with decreasing complexity of the page there is a steady decrease in the number of letters seen. The maximum span of attention occurred with the page divided into 15 equal parts, the eight-division page was next, the quarter page next, and the half page last. In trying to explain this, two factors must be taken into account. First, the fact that there were actually more letters to be seen ; and secondly, the fact that the letters were closer together on the more complex page. Both of these factors undoubtedly have

some influence, just how much it is impossible to say. If, however, we find out the average space occupied by each letter, obtaining the area inclosed by the straight lines joining the outer edges of the outermost letters, and divide this by the number of letters on the page, we get the following expression: The attention range varies approximately inversely as the sixth root of the average area occupied by each letter.

2. The influence of cross lines between letters on the span of attention.

Since it is a common belief that cross lines are difficult for the eye to traverse, it was decided to test the effect of such lines in the experiment. If it is difficult for the eyes to go across such lines, the span of attention should be smaller when the lines are present; if they make no difference, the span of attention should be the same.

In preparing the material for the experiment, this question was borne in mind. Consequently half of the cards were prepared with cross lines, the other half without them. Working out the averages for the two kinds of cards, we found that there was a difference of two tenths of one per cent in favor of the cards with cross lines. This difference is so slight that it is obviously of no value. The conclusion is that cross lines have no appreciable effect upon the range of attention. Whether or not they should be used is then a question, not of attention, but of æsthetics.

3. The attention value of different parts of the page.
A. Page of 15 divisions.

We now turn to a consideration of the results obtained from the cards showing 15 divisions and representing the forward turning of the magazine page. Two tables will be given for each division of the page, one showing the number of times each position on the page was seen first, the other showing the total number of times each position was seen at all. The tables are

arranged in such a way as to represent in miniature the cards which were used. In the first table, for example, we show that the upper left-hand corner of the 15-division cards was seen first 471 times; the lower right-hand corner was seen first twice.

TABLE SHOWING THE NUMBER OF TIMES EACH POSITION ON THE 15-DIVISION PAGE WAS SEEN FIRST

471	10	16	497
30	23	2	55
44	28	1	73
24	15	0	39
19	1	2	22
588	77	21	686

ABOVE TABLE REDUCED TO PERCENTAGE VALUES

68.6	1.5	2.3	72.4
4.4	3.4	0.3	8.1
6.4	4.1	0.1	10.6
3.5	2.2	0.0	5.7
2.9	0.1	0.3	3.3
85.8	11.3	3.0	100.1

The results of this method of recording the figures are so obviously and strongly in favor of the upper left-hand corner of the page that they evidently do not represent the relative values of the different parts of the page. However, they are extremely striking in showing where the eye does first fall upon the printed page when all parts of the page have an approximately equal interest and intensity value.

The conclusion to be drawn from this method of recording the results is, obviously, that the upper left-hand corner of the page is the first part to be seen in slightly over $\frac{2}{3}$ of the entire number of tests, while the left side of the page is seen first in almost $\frac{2}{10}$ of the trials. That portion of the page just above the middle is seen first less than $\frac{1}{10}$ of the times, whereas the top is seen first nearly three times out of every four. These results are very sharply opposed to Gale's.

Since the gaze ordinarily wanders over a page somewhat, not only the first thing seen has value, but anything on the page which is noticed. A table showing the total number of times each position on the 15-division page was seen, follows:

TABLE SHOWING THE TOTAL NUMBER OF TIMES EACH POSITION ON THE 15-DIVISION PAGE WAS SEEN

487	429	350	1266
153	131	106	390
97	114	87	298
53	69	60	182
42	28	48	118
832	771	651	2254

ABOVE TABLE GIVEN IN PERCENTAGES

21.6	19.1	15.6	56.3
6.8	5.8	4.7	17.3
4.3	5.1	3.9	13.3
2.4	3.1	2.7	8.2
1.9	1.2	2.1	5.2
37.0	34.3	29.0	100.3

This table, consisting as it does of 2244 different cases, may lay some claim to probability. Therefore, the following conclusions should hold good as to the approximate number of times each position on the right hand page when turning towards the back of the magazine will be seen, as long as we assume each position on the page to have an equal interest, intensity and color value. These variations will be considered in a later section.

CONCLUSIONS

1. Any way of figuring the results makes the left side of the page the best from the standpoint of attracting attention. The middle is next, and the right is last. This condition is probably due to the habits transferred from the reading process, where the natural tendency is to begin at the left and work towards the

right. As an outgrowth of this habit, we have a secondary tendency, namely that the stationary eye ordinarily sees more to the right of the fixation mark than it does to the left. This means that an initial fixation towards the left side of the page is more favorable for the apprehension of the greatest amount of material.

2. Any way of figuring the results gives the top of the page a higher attention value than any of the other horizontal divisions. There seems to be no ground for saying that the portion just above the middle is seen most frequently, for any method of working out the results shows that it has only one fourth to one fifth of the attention value of the region just above it. This tendency can be explained in part at least by our reading habits, for the usual method is to start at the top and work down line by line.

3. In general, the eye tends to fall first upon the upper left-hand corner of the page, then to run across the top. From there its course is slightly more erratic. It swings back, either to the column just under the top or directly to the middle of the page, seldom going down to the bottom, but wandering back and forth about the geometrical center.

B. Results with the page divided into 8 equal parts.

TABLE SHOWING THE NUMBER OF TIMES SOME PORTION OF THE 8-DIVISION PAGE WAS SEEN FIRST

277	21	298
13	5	18
3	1	4
4	0	4
297	27	324

PREVIOUS TABLE REDUCED TO PERCENTAGES

85.5	6.5	92.0
4.1	1.5	5.6
0.9	0.3	1.2
1.2	0.0	1.2
91.7	8.3	100.0

TABLE SHOWING THE TOTAL NUMBER OF TIMES EACH PART OF THE 8-DIVISION PAGE WAS SEEN

287	256	543
202	210	412
55	79	134
21	43	64
565	588	1153

ABOVE TABLE REDUCED TO PERCENTAGES

25.0	22.3	47.3
17.5	18.3	35.8
4.8	6.9	11.7
1.8	3.7	5.5
49.1	51.2	100.3

CONCLUSIONS

1. The general outcome of these results is very similar to those previously discussed for the page divided into 15 equal parts. The top of the page is considerably better than the bottom, showing a steady and consistent decrease from top to bottom.

2. When we consider the number of times some position on the page was seen first, we find the left side of the page to be much better than the right. Considering the total number of times some position was seen, we find that the right side is very slightly better than the left, owing to the additional number of times it was seen second, third, etc. It is probable that the left side of the page is somewhat better than the right, however, since it has a higher initial attention value.

The upper left-hand corner was again the best place on the page. The moral which the user of the eighth-page advertisements could draw from these figures is that he should by all means secure the upper part of the page for his advertisements, and preferably the left side of the page. Anything in the lower half of the page is fortunate to be noticed at all, and, to bring any results, must be of superior excellence.

C. Results with the page divided into four equal parts.

TABLE SHOWING THE NUMBER OF TIMES EACH POSITION ON THE 4-DIVISION PAGE WAS SEEN FIRST

460	22	482
73	11	84
533	33	566

REDUCTION TO PERCENTAGES

81.1	3.9	85.0
12.9	1.9	14.8
94.0	5.8	99.8

TABLE SHOWING THE TOTAL NUMBER OF TIMES EACH POSITION ON THE 4-DIVISION PAGE WAS SEEN

551	467	1018
351	285	636
902	752	1654

REDUCTION TO PERCENTAGES

33.3	28.2	61.5
21.2	17.2	38.4
54.5	45.4	99.9

These results show almost the same thing as those considered before: namely, the left side of the page is better than the right; the top is better than the bottom; the best place of all is the upper left-hand corner. Consequently, the selfsame moral holds for the quarter page division which held for the eighth.

D. Results with the page divided into 2 equal parts.

1. The horizontal division of the page.

TABLE SHOWING THE NUMBER OF TIMES EACH POSITION ON THE 2-DIVISION PAGE WAS SEEN FIRST

NO. OF TIMES	PERCENTAGES
693	85.5
117	14.5
810	100.0

TABLE SHOWING THE TOTAL NUMBER OF TIMES EACH POSITION ON THE 2-DIVISION PAGE WAS SEEN

NO. OF TIMES	PERCENTAGES
803	50.4
791	49.6
1594	100.0

CONCLUSION

Any way of figuring the results makes the top of the page better than the bottom, but not to such an extent as was the case with the eighth- and quarter-page divisions. The eye starts at the top and almost invariably works down to the bottom of the page.

2. The perpendicular division of the half page with letters in the upper left- and lower right-hand corners.

TABLE SHOWING THE NUMBER OF TIMES EACH POSITION ON THE
2-DIVISION PAGE WAS SEEN FIRST

NO. OF TIMES	PERCENTAGES
431	94.0
28	6.0

TABLE SHOWING THE TOTAL NUMBER OF TIMES EACH POSITION ON THE
2-DIVISION PAGE WAS SEEN

NO. OF TIMES	PERCENTAGES
456	50.5
448	49.5

These tables indicate that the left side of the page and the top are best.

3. The perpendicular division of the half page with letters in the upper right- and lower left-hand corners.

TABLE SHOWING THE NUMBER OF TIMES EACH POSITION ON THE
2-DIVISION PAGE WAS SEEN FIRST

NO. OF TIMES	PERCENTAGES
137	30.0
318	70.0

TABLE SHOWING THE TOTAL NUMBER OF TIMES EACH POSITION ON THE
2-DIVISION PAGE WAS SEEN

NO. OF TIMES	PERCENTAGES
441	49.2
454	50.8

This table shows the left side of the page to be better than the right. But, oddly enough, the bottom has a higher attention value than the top. This seems to

indicate that the left-hand factor of the complex is stronger than that which influences one to begin at the top. The eye starts at the lower left-hand corner and almost invariably goes from there to the upper right.

E. Results obtained from turning the page in the opposite direction.

Before finishing the experiment 32 subjects were tested with the apparatus arranged in such a way that it represented the appearance of the left-hand page as seen by turning from the back towards the front of the magazine. The results with the page of 15 divisions differ in but one respect from those obtained in turning the page in the opposite direction. These results show the center of the page considering the perpendicular divisions to have a higher attention value than any other portion, the left being next and the right last. The percentage values are given below.

LEFT	MIDDLE	RIGHT
33.0	35.8	31.2

Furthermore, the results obtained from the quarter- and half-page divisions differ in no important particular from those obtained in turning the page in the opposite direction. There is, throughout, a slightly higher value for the right side of the page, though the left is still better than the right. Nothing else of any particular importance appears.

ATTENTION VALUE OF RIGHT AND LEFT PAGES

A variation of the experiment testing the attention value of different parts of the page was performed as follows: A dummy was constructed consisting of 26 pages of typical advertisements cut from recent magazines. It contained 16 full-page, 12 half-page, 17 quarter-page and 14 eighth-page advertisements. The subjects, 47 of whom were used in the investigation, were seated

in a chair, and the experimenter, standing about three feet away, exposed the advertisements for a fraction of a second by opening the dummy. The subject then wrote down all that he had seen in the order in which he had seen it. The total credits received by each of the 26 pages were added together to give the attention values of the various parts of the pages. The results follow.

It was found that the right-hand page had a considerably higher attention value, the credits being respectively 1427 and 937 or 100 per cent to 65 per cent.

Considering the upper and lower halves of each page, it was found that the upper half had a considerable advantage with both the right- and left-hand pages. This is shown in the accompanying table :

	UPPER HALF	LOWER HALF
Right	1020	407
Left	608	329
Total	1628	736

It is seen from the table that the upper half of the page has more than twice the attention value of the lower half. /

With the quarter-pages, the following figures were obtained :

	RIGHT PAGE	LEFT PAGE	TOTAL
Upper quarter . . .	603	350	953
Upper middle . . .	417	250	657
Lower middle . . .	262	177	439
Bottom	145	152	297

This table indicates that the upper quarter is very much better as regards attention value than any of the others. There is a constant and steady decrease in value from the top of the page to the bottom. In fact, the figures show that the upper quarter is approximately $\frac{1}{3}$ better than the one just under it, that the upper middle quarter is approximately $\frac{1}{3}$ better than the one just under it, and so on, going down by thirds until the bottom quarter is reached.

Regarding the attention value of newspaper pages, few data are at hand. However, as a by-product of an experiment on the memory value of newspaper advertisements, it was found that the position on the page which was first seen depended very largely upon whether the paper was held in the hands or laid upon a table. In the former case, the top of the page had a much greater attention value, while in the latter case, where the paper was placed upon a table, the bottom of the page was found to have a greater attention value than the top.

The conclusions to be derived from these experiments are as follows:

1. Considering the perpendicular divisions of the page, the top has the greatest attention value, the bottom the smallest, with a steady gradation between them.

2. Regarding the horizontal divisions of the page, the outside edge has the highest attention value, probably for the reason that the inside edges are partially hidden by the bending of the pages, in the standard magazine. On an entirely flat surface, the left side has a much greater attention value than the right.

3. The upper outside corner of the page has the greatest attention value of any part and should, therefore, be the position occupied by the part of the advertisement which is devised to catch the attention. Provided interest is aroused, the remaining parts of the advertisement should lead the eye of the reader by easy stages to that part which will induce the action.

4. The right-hand page has a considerably greater attention value than the left.

Closely related to the problem of securing the position on the page which has the highest attention value is the one of the most satisfactory places in the advertising section. In the standard publications, the positions which are most likely to be seen are undoubtedly the preferred positions, the back cover, the inside of the back and front cover, the pages facing the reading matter, the page facing the table of contents, and so on. The advertisements in the body of the advertising section have less chance of being seen by the casual reader. The protest of the advertisers who were submerged in the middle of the section have caused certain magazines to alter their form of arrangement in such a way as to allow the mixing of advertisements with the reading matter. This custom is supposed to give each advertisement a much greater attention value. That it does so is a mere matter of common sense, but whether the procedure is satisfactory from the standpoint of returns is a debated matter. For successful advertising consists of much besides the gaining of attention. To be adequate, the advertisement must gain favorable attention, must be remembered, and must lead to action.

The efficiency of the "next reading" advertisements has been investigated by Scott.¹ He sent out the following letter to a large number of advertisers and agents.

"NORTHWESTERN UNIVERSITY,

"August 23.

"Dear Sir:

"Certain influential manufacturers with national distribution are convinced that an advertisement placed next to reading matter (such as an interesting story) is placed in a preferred position.

¹ Scott, W. D., *Advertising and Selling*, January, 1916.

"Other manufacturers prefer to have their advertisement located in the section of the publication set aside for advertisements. Their conviction is based on the theory that good reading matter and good advertising matter on the same page conflict.

"Both parties to the dispute seem to base their faith upon opinion rather than upon fact. The question is one of such great importance to the science of advertising that I feel justified in asking for your coöperation in an attempt to secure the truth.

"1. Do you know of any evidence (facts and not opinions) that advertising next to reading matter is of greater value to the advertiser than advertising space massed at the two ends of the magazine?

"2. Have you any facts to show the contrary to be true? Or

"3. Have you data to prove that the matter of location in no way affects the power of the advertisement to influence the reader?

"If you have such evidence, and would intrust me with it, I assure you that it will be used in a manner entirely satisfactory to you.

"A letter similar to this is being sent to some of the leading advertisers in America. If you so desire I will report to you an analysis of the answers, so far as is consistent with the confidential nature of the replies.

"For your convenience a self-directed envelope is enclosed for reply.

"WALTER DILL SCOTT."

"Replies were received from five hundred eighty advertisers and from one hundred ninety-six agencies. In some instances several members of the firm sent separate answers. Each of these is listed as an independent reply, and the number of replies from each firm is noted in the list by a figure after the firm name.

"Of the 580 advertisers, 34, or almost 6 per cent, present facts to prove that advertising space in the segregated advertising sections is of more value than space next to reading matter.

"Of the 580 advertisers, 60, or almost 10 per cent, present facts to prove that space next to reading matter is more valuable than space in the segregated advertising sections.

"Of the 580 advertisers, 54, or a little less than 10 per cent, present no facts, but express the opinion that space in the segregated advertising sections is more valuable than space next to reading matter.

"Of the 580 advertisers, 131, or a little over 22 per cent, present no facts, but express the opinion that space next to reading matter is superior to that in segregated advertising sections.

"Of the 580 firms, 301, or almost 52 per cent, assert that there is no difference in the value of space in the two classes of magazines; that they are undecided in their opinion; or fail to include in their reply any facts or expression of opinion bearing on the topic.

"Of the 196 advertising agency respondents, 12, or a little over 6 per cent, present facts to prove that space in the segregated advertising sections is more valuable than space next to reading matter.

"Of the 196 advertising agency respondents, 27, or a little less than 14 per cent, present facts to prove that space next to reading matter is more valuable than space in the segregated advertising sections.

"Of the 196 agency respondents, 9, or a little less than 5 per cent, present no facts, but express the opinion that space in the segregated advertising sections is of more value than space next to reading matter.

"Of the 196 agency respondents, 54, or 28 per cent, present no facts, but express the opinion that space

next to reading matter is more valuable than space in segregated advertising sections.

"Of the 196 agency respondents, 99, or almost 51 per cent, present no facts, but express the opinion that there is no difference in value between space in segregated and next-to-reading matter; that their evidence is not conclusive; or they present neither facts nor opinions.

"Of the 196 agency respondents, 5 present data from one group of clients indicating the superiority of segregated space, and from another group of clients indicating the superiority of space next to reading matter. These five firms are, of course, included in both the 6 per cent and the 14 per cent as presented above.

	FACTS FOR STAND- ARDS	FACTS FOR FLATS	OPINIONS FOR STANDARDS	OPINIONS FOR FLATS	UN- DECIDED	TOTAL
Advertisers . . .	34(6 %)	60(10 %)	54(10 %)	131(22 %)	301(52 %)	580
Agencies . . .	12(6 %)	27(14 %)	9(5 %)	54(28 %)	99(51 %)	201*
Total . . .	46	87	63	185	400	781
Total per cent	6 %	11 %	8 %	24 %	52 %	

* The 196 advertisers here tabulated as 201, as 5 presented data on both sides of the debate.

"A study of these 776 replies leaves one with certain very definite convictions:

"First: For certain classes of goods and under certain conditions there is a clear difference in the value of space in segregated advertising sections and space next to reading matter. For schools, books, railroads, resorts, and investments, space in segregated sections is more valuable than space next to reading matter. Space next to reading matter is more valuable than space in the segregated advertising sections for advertisements of silk if the advertisement is placed next to an article

on dresses or internal household decorations; for advertisements of seeds, if placed next to an article on gardening; for advertisements of almost any class of goods if placed next to an article dealing with the use of the goods advertised.

"Second: Space in some standard magazines is more valuable than space in certain flat magazines for almost any class of goods; but space in some flat magazines is more valuable than space in certain standard magazines for almost any class of advertising.

"Third: The conflicting evidence in the data and in the opinions presented by the experts, and the absence of conviction on the part of so many of them, make it evident that segregated *vs.* next-to-reading-matter is not the controlling factor in value of advertising space. The quantity and quality of the circulation, the responsiveness developed in the readers, and other contributing factors, must be considered in each instance before any definite conclusion can be reached as to the value to advertising space in any particular magazine."

2. It is a commonplace of experience that we attend to intense stimuli. A flash of lightning, the sound of a telephone bell, the sting of a bee, all receive very prompt consideration. In the nature of the case, intense stimuli must receive attention. For the stimulus, because of its very intensity, floods a certain part of the cortex of the cerebrum with nerve energy, making it thus much more active than any other portion of the brain could be.

3. Large objects compel our attention for exactly the same reason that intense stimuli do. The reason is simply because a large stimulus gives rise to a greater amount of nerve energy than a smaller one does, thereby causing a greater degree of activity in the region of the brain to which it goes than is taking place in any other region.

As subdivisions under size are to be considered such principles as isolation and contrast. By contrast, we mean simply that two things are put together in such a way as to emphasize each other. The effectiveness of the device is due to the particular structure of our sense organs. Isolation is effective for two reasons. Being taken out of its customary relations, the object stands forth more clearly and distinctly than it otherwise would. The object is also given an emphasis which would otherwise be lacking, for there are no other things in the neighborhood which are also tending to get into the focus of consciousness.

To investigate the effect of the size of a stimulus, a series of cards was prepared similar to those used in testing the attention value of position on the page. Eight colors; red, orange, yellow, green, blue, violet, gray and black were used. In the first series four different colors were mounted on each card in the same way that the four letters were placed in the previous test. Three other cards were made so that each color appeared in turn in each position. This was done to avoid the effect of the position of the color on the card. The entire series B showed each color, in a square one inch on a side, in each position on the card. In this way, each color had an equal chance with every other color of being seen. In series C, one color on each card was increased to 1.5 inches on a side and appeared successively in each of the four positions. In this way, larger bits of red, yellow, green, and blue, were shown in each position. In series D, the size of one color was increased to two inches by two inches and in series E to three inches square. In series C, D, and E the other three colors remained a constant size, one inch square. In the whole experiment, slightly over 300 persons were experimented upon. The method of procedure was exactly like that employed in investigating the attention

value of different parts of the page. The number of times the color was seen first was used as the measure of the attention value, for the point involved was, what color will catch the eye first, the larger ones or the smaller ones?

The result shows that the size of the color had a definite influence upon the number of times it was seen first. The table given below shows the outcome. In series B, the average number of times the colors one inch square were seen first is given after having been reduced to ratios. In series C, the ratio of the number of times the color 1.5 inches square was seen first is given and likewise for D and E.

THE ATTENTION VALUE OF SIZE

SIZE	MEN	WOMEN	BOTH
1 × 1	1.00	1.00	1.00
1.5 × 1.5	1.68	1.85	1.78
2 × 2	1.91	2.11	2.05
3 × 3	2.48	2.93	2.74

This table shows that with an increase of size of the stimulus, there is an increase of attention value. The curve, as shown in Fig. IV, does not follow a root or power curve, increasing too rapidly at first and too slowly afterwards. But it does show that the larger the object is, within the limits of the experiment, the more likely it is to catch the eye.

The table furthermore shows that the women were somewhat more influenced by increase of size than the men were.

Not only are these facts brought out by the investigation, but it was also determined that the small colors on the same cards with the larger ones lost in attention

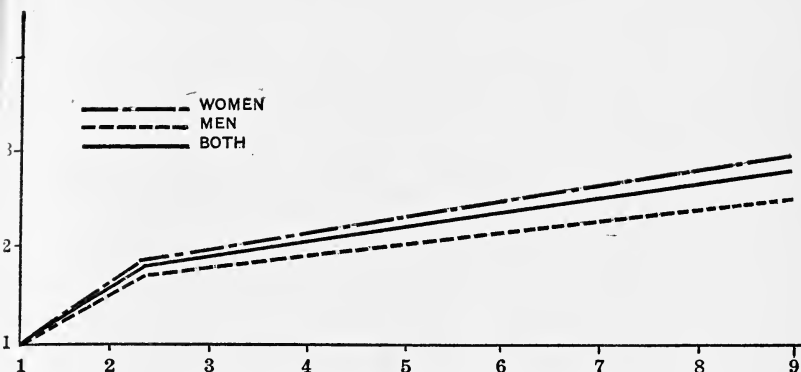


FIG. IV. — Showing the attention value of size. The units of size are plotted on the horizontal line, the attention value on the vertical.

value and decreased in effectiveness the larger the other color was. This is brought out in the following table :

SIZE OF LARGE COLOR	ATTENTION VALUE OF SMALL COLOR		
	MEN	WOMEN	BOTH
1 × 1	1.00	1.00	1.00
1.5 × 1.5	.795	.710	.745
2 × 2	.713	.605	.652
3 × 3	.550	.302	.411

It is possible that a fairer measure of the attention value of size would be made by taking this last factor into account and instead of establishing the ratios in terms of series B, to use as the basis the attention value of the small colors appearing on the same cards with the larger one. This is done in the table on the next page.

This way of considering the matter shows that the attention value of size varies almost directly with the size, or more accurately, as the 1.17 root of the area, except in the case of the C series. The experiment

demonstrates that size is an influential factor in two ways. In the first place, sheer size pulls attention towards itself. In the second place, it distracts attention from the neighboring objects. The first table may be said to show the effect of size in isolation, the second the effect of large objects in relation to smaller objects.

SIZE	MEN	WOMEN	BOTH
1 X 1	1.00	1.00	1.00
1.5 X 1.5	2.11	2.61	2.39
2 X 2	2.68	3.49	3.15
3 X 3	4.51	9.70	6.66

4. Likewise, the duration of a stimulus is a factor which affects attention. A stimulus which lasts twice as long as another sends approximately twice as much nerve current to the brain as does the briefer one. Consequently, we are likely to attend to those things which endure for some time. There is, indeed, a lower limit of intensity, size, and duration of stimulation below which no sensation results. There is also an upper limit beyond which increases in any of these attributes is ineffective. If an object is so large that it fills the whole visual field, any increase in size is ineffective because it is not noticed. The same principle holds true of intensity and duration as well.

5. The frequency with which the stimulus occurs may likewise affect its attention value, especially if it proves to be interesting. The ease with which the sound of our names will distract us from some task is a familiar example of this. If the stimulus does prove to be interesting, the more frequently it occurs, other things being equal, the easier it is to attend to it, for a pathway of easy entrance of the nerve current derived from it has been established. If the object giving rise

to the stimulus has no particular meaning, if we have attended to it on previous occasions and have found that it does not enter into our scheme of things, it will no longer be attended to for more than the briefest moment, for we have developed a habit with reference to it.

To test the attention value of frequency or repetition, this experiment was devised. Three colors and a picture were pasted upon a card the size of the standard magazine advertising page. The picture always occupied the lower right-hand corner. The series was made up in such a way that the same picture was shown either twice, three times, or four times. It was also arranged so that the like pictures would sometimes come in immediate succession, sometimes they were separated by one sheet, again by two, or by three or by four sheets. The question was whether the same picture, always in the same position on the card, would catch the eye more frequently upon its first, second, third, or fourth appearance. The pictures were of different sizes, and to allow for this, the total credits which each picture received were divided by the attention value of that size as determined in a previous experiment. This method of treating the results ruled out the size factor. None of the pictures was colored, so there had to be no allowance on that score. A factor which was not ruled out was the interest value of the picture. It was impossible to determine beforehand what pictures would prove interesting, so as wide a range as possible was selected, with the idea that the error from this source would tend to be eliminated in the long run. These cards were exposed for a fraction of a second in the same holder which was used in the previous attention experiments. One hundred and seven subjects were used, 62 women and 45 men. To make the results comparable, they were reduced to the basis of 100 subjects of each sex. The results follow:

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INTERVAL	FEMALE								
	Number of cards containing same picture								
	1	2	1	2	3	1	2	3	4
0	24	22	7	8	5	20	12	12	8
1	25	22	30	23	24	22	23	14	14
2	22	22	4	7	7	12	17	12	13
3	20	26	27	19	27	25	12	13	8
4	28	22	20	18	17	28	19	23	25
	119	114	88	75	80	107	83	74	68
	MALE								
0	33	54	11	11	0	17	11	14	29
1	37	46	40	37	26	26	14	6	14
2	16	26	17	14	23	29	29	23	14
3	26	29	29	26	23	40	17	9	14
4	52	43	26	31	17	20	31	31	29
	164	198	123	119	89	123	102	83	100

Reducing these figures to take account of the differences in area, the following is obtained :

INTERVAL	FEMALE								
	1		2		3		4		
0	8.0	7.3	4.3	4.9	3.1	11.6	6.9	6.9	4.6
1	10.1	8.9	13.9	10.7	11.1	13.8	14.4	8.8	8.8
2	8.5	8.5	2.4	4.2	4.2	7.3	10.3	7.3	7.9
3	7.6	9.8	12.0	8.5	12.0	15.4	7.4	8.0	4.9
4	9.0	7.1	8.1	7.3	6.9	14.1	9.3	11.2	12.2
	43.2	39.6	40.7	35.6	37.3	62.2	48.3	42.2	38.4
	MALE								
	1		2		3		4		
0	11.0	18.0	6.8	6.8	0.0	9.8	6.4	8.1	16.8
1	15.0	18.6	18.5	17.1	12.0	16.2	8.8	3.8	8.8
2	6.2	10.0	10.3	8.5	14.0	17.6	17.6	14.0	8.5
3	9.8	10.9	12.9	11.6	10.3	24.7	10.5	5.6	8.7
4	16.8	13.9	10.6	12.6	6.9	9.8	15.1	15.1	14.1
	48.8	71.4	59.1	56.6	43.2	78.1	58.4	46.6	56.9

	FEMALE								
Ratios	1.00	.92	1.00	.88	.92	1.00	.78	.68	.62
	MALE								
Ratios	1.00	1.46	1.00	.95	.73	1.00	.75	.59	.72
Average	1.00	1.18	1.00	.91	.83	1.00	.76	.65	.67

To determine the attention value of frequency of repetition, the ratios for one, two, three, and four appearances were averaged for the women and for the men. The results of the men and the women were then combined, each receiving an equal value, for there was no desire to weigh the results of the women, though there were more of them. The table showing this combination of the results follows:

ATTENTION VALUE OF APPEARANCE

	1	2	3	4
Women	1.00	.855	.798	.618
Men	1.00	1.055	.663	.728
Both	1.00	.955	.731	.673

These figures show that a picture, such as is customarily used in an advertisement, is most likely to catch the attention the first time it is exposed, and the chances of its being seen first decrease with the total number of times that it is presented. This is the average tendency, for it often happened that the second appearance had a higher attention value than the first. The men, on the whole, seem to be more influenced by repetition than do the women. The results also indicate that the men are more likely to see the picture first.

For purposes of comparison with material which will

come later, it is desirable to work the results through in another way, viz., by totaling the number of times the picture was seen first with one appearance, two, three, and four appearances. This is obtained by adding together the ratios for one, two, three, and four appearances. The table resulting from this method of considering the data is given below:

TOTAL NUMBER OF TIMES THE PICTURE WAS SEEN FIRST WHEN IT APPEARED

	ONCE	TWICE	THREE TIMES	FOUR TIMES
Women	1.000	1.855	2.653	3.271
Men	1.000	2.055	2.718	3.446
Both	1.000	1.955	2.685	3.358

This method of considering the results shows that the attention value of frequency of repetition varies approximately as the 1.12 root of the number of presentations. A curve, showing this tendency graphically, is given in Fig. V. The tendency is somewhat more marked with the men than it is with the women, whereas size had a greater effect upon the women than it did upon the men.

6. Mere intensity, mere size, mere duration, however, soon cease to be effective, for we soon become adapted to them. The sense organ and the cortical cells soon become fatigued, the nervous excitation in that region of the cortex is decreased and attention wanes. Consequently, change in intensity, change in size, change in duration are necessary to keep attention going for any length of time. This principle is correlated definitely with the following one, motion.

7. Anything which is in motion is almost certain to be attended to. The periphery of the eye, for example,

is serviceable largely for noticing objects which are moving. It is practically blind to everything else under normal conditions. This fact greatly increases the likelihood of a moving object's being seen.

As a matter of fact, these first five conditions of attention are really biological reasons for attending. It was absolutely essential that our prehistoric ancestors

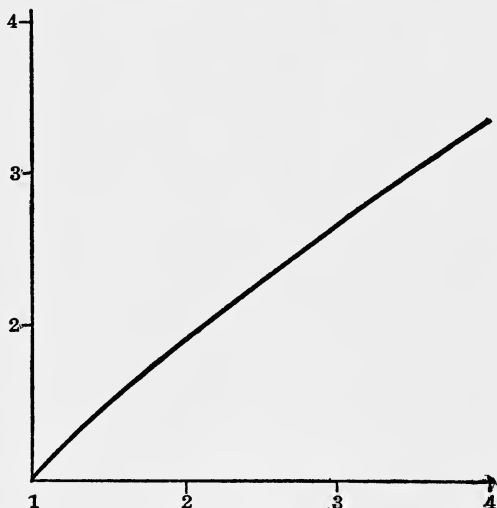


FIG. V. — Showing the attention value of frequency. The number of times the picture was presented is plotted on the horizontal line, the attention value on the perpendicular. For complete explanation see text.

should attend to objects giving rise to intense stimuli, to large objects, to long-enduring objects, and especially to moving and changing objects. For those were the very things which might be dangerous; which, if neglected, might destroy the individual. Consequently, those who proved inattentive were soon eliminated. In this way, the tendency to attend to size, intensity, etc. has been passed on from generation to

generation down to the present day. The reason that these factors are effective depends in every case upon the sheer amount of nerve energy which comes into the brain, overriding all opposition. They really take us by storm.

The objective factors or conditions are called by that name because they are due to the character of the stimulus and affect practically all persons in approximately the same way. They give rise to a maximum of activity in a particular cortical region because of the amount of nerve energy going to the brain. In spite of the resistance offered to their passage in the nervous system which results in a decrease of the amount of nerve current eventually getting to the cortex, there is so much left that it produces a very great effect.

Certain other sorts of stimuli, which are weaker or at least no stronger than the list given above, get into the brain without having to waste so much of their substance on the way. This is because they go over inherited pathways of conduction in the nervous system which offer very little resistance to the passage of the nerve current.

Certain other stimuli have an easy time in getting to the brain because we, by our own efforts and past training, have formed pathways of low resistance leading to the brain. Not only this, but such stimuli find a ready reception once they get into the brain, for they enter a region of the cortex which is already partially active. The partial activity plus the nerve current which gets in produce a greater sum total of activity in that region of the brain than is going on in any other part of it. The result is attention to that object.

In connection with the second class, those stimuli which come into the brain over inherited pathways, we have the whole group of instincts which the human being possesses. These instincts may for purposes of classification be divided into three groups: the indi-

vidual, the social, and the racial instincts. The essential factor about them all is that we find the objects giving rise to them interesting. By interesting, we mean simply that we find them easy to attend to.

1. Among the individual instincts may be mentioned the following: seeking food, fear, pugnacity, self-assertion, collecting, hoarding, rivalry, hunting, cruelty, constructiveness, cleanliness.

2. Among the social instincts are social fear, bashfulness, stage fright, and the like: sociability, sympathy, self-sacrifice for the larger group.

3. Among the racial instincts are sexual love, parental love, the nest-building or home-building tendency, coquetry, jealousy.

Another factor which must be mentioned, though it probably belongs to neither of the classes so far discussed, is color. It is a commonplace of experience that we attend to certain colors much more readily than to others. The reason is complex, partly because of the intensity of the color or rather the sheer physical energy of the stimulation, and partially because of biological reasons; for certain colors meant, primarily, background, and certain others meant food or danger. Those colors which meant food and danger are the ones which we attend to most readily.

As a continuation of the experiment upon the attention value of different parts of the page, and using the same general method, another investigation was made upon the attention value of the different spectral colors in full saturation as given by the Bradley series. The following colors were used: red, orange, yellow, green, blue, and violet. To those were added black and a middle gray.

As in the previous experiment, cards of white pasteboard, the size of the standard magazine advertising page, were ruled off with black lines to represent the quarter-page division of the page. Squares of color,

one inch on a side, were pasted in the center of each of the areas made by the ruled lines, and the arrangement was such that each color occupied successively each position on the page.

These cards, as in the previous experiment, were shown to the subject one at a time and he was instructed to write down the names of all the colors which he saw in the order in which they entered his consciousness. A total of 119 subjects was used in this experiment and from them were obtained 3257 reactions. Since the primary aim of the experiment was to test the attention value of the different colors, it was decided to let the fact of the color being seen first constitute the measure of this value. Since each color appeared, not only in the preferred position, but also in each other position on the page, an equal number of times, each one had, *a priori*, an equal chance of being seen first. Therefore, if any one color was seen first more often than another, it ought to be because of a stronger attention value.

The results are given in the form of a table, in which the numbers appearing after each color represent the total number of times the color was seen first, regardless of its position on the page.

COLOR	SEEN FIRST BY		
	Men	Women	Both
Red	283	323	606
Orange	436	262	698
Yellow	216	175	391
Green	175	236	411
Blue	311	224	535
Violet	90	90	180
Black	222	214	436
Gray	0	22	22
	1733	1524	3257

The order of attention value is as follows :

COLOR	MEN	WOMEN	BOTH
Red	3	1	2
Orange	1	2	1
Yellow	5	6	6
Green	6	3	5
Blue	2	4	3
Violet	7	7	7
Black	4	5	4
Gray	8	8	8

Red, orange, blue, and black are the colors which are most likely to catch the eye first when a number are presented simultaneously. That women rank red higher than the men and the men place blue higher than the women is interesting because of the fact, as will be seen later, that women like red better than men do, whereas men like blue better than women do.

The question of the attention value of colors had been previously investigated by Gale.¹ He says, "We selected the standard colors according to Bradley's color chart, of red, orange, yellow, green, blue, and purple: mounted these in one inch squares together with a black square on a nine-inch square white card-board. . . . Each card was momentarily illuminated by the same electric light apparatus. . . . The proportion of colors thus first seen by 9 male and 7 female observers in 50 trials by each person . . . is as follows." He gives his results for the white background in the following table. His results with the black background are disregarded, for in our experiment only the white background was used.

¹ Gale, Harlow, "University of Minnesota Studies in Psychology," pages 55 ff.

COLOR	MEN	WOMEN	BOTH
Red	88	113	201
Orange	88	38	126
Yellow	4	23	27
Green	87	66	153
Blue	24	38	62
Purple	8	29	37
Black	151	43	194

It will be seen that the results of Gale's experiment are decidedly different from the one described above. This may be due to three reasons. In the first place, but one card was used and certain of the colors must have occupied preferred positions. Secondly, the momentary illumination by the electric spark did not duplicate advertising conditions. Also the spark itself was slightly colored and would consequently change the color tone of each of the stimulus colors. In the third place, the use of the same subject 50 times is objectionable in a test of this sort, for it does nothing but overemphasize the individual differences which always exist in a problem of this sort.

The third group of stimuli, which we attend to because of our own acquired interests, are many and varied. In part, they are linked up with the instinctive variety, in part they are modifications of the instinctive, and in part they represent real individual peculiarities. It is absolutely essential that all animals attend to and make adjustments with reference to certain objects, for these objects and situations occur again and again in the history of the race and of the individual. It is a biological economy for such a condition to exist. Other stimuli and other situations occur with relative infrequency to the whole race, but are very frequent happenings to certain individuals. It would be a

biological waste to implant instincts to meet the latter situations in all, for the majority would never use them. So each individual is left to work out his own salvation in respect to these situations. The development on the motor sides results in habits; on the conscious side in acquired interests. As was shown in the second chapter, the differences in interests of this sort are largely owing to differences in occupation. Because in different occupations we are exposed to different sorts of stimuli, our minds develop in terms of the ideas which enter them. The manufacturer has had a different training and consequently is interested in different things from the soldier. The soldier is different mentally from the artist, the artist from the farmer, etc. Each is interested in different things or interested in the same thing in different ways and for different reasons. His interests determine his attitude towards the different things in his environment, determine his response to them. He thinks in terms of the things which he knows, and regards almost everything else as uninteresting and difficult. He thinks in terms of what he knows and he attends in terms of what he knows.

An incident, quoted by James from Steinthal,¹ will give point to the statement. "In a compartment of a railway carriage six persons unknown to each other sit in lively conversation. It becomes a matter of regret that one of the company must alight at the next station. One of the others says that he of all things prefers such a meeting with entirely unknown persons, and that on such occasions he is accustomed neither to ask who or what his companions may be nor to tell who or what he is. Another thereupon says that he will undertake to decide this question, if they each and all will answer him an entirely disconnected question. They began. He drew five leaves from his notebook, wrote a question

¹ James, "Principles of Psychology," II, page 108.

on each, and gave one to each of his companions with the request that he write the answer below. When the leaves were returned to him, he turned, after reading them, without hesitation to the others and said to the first, 'You are a man of science'; to the second, 'You are a soldier'; to the third 'You are a philologist'; to the fourth, 'You are a journalist'; to the fifth, 'You are a farmer.' All admitted that he was right, whereupon he got out and left the five behind. Each wished to know what question the others had received; and behold, he had given the same question to each, It ran thus:

"What being destroys what it has itself brought forth?"

"To this the naturalist had answered, 'vital force'; the soldier, 'war'; the philologist, 'Kronos'; the publicist, 'revolution'; the farmer, 'boar.' Each one answers the first thing that occurs to him, and that is whatever is most nearly related to his pursuit in life. Every question is a hole-drilling experiment, and the answer is an opening through which one sees into our interiors."

The reason why such stimuli gain our attention is because they come in over the same pathway in the nervous system so many times that they decrease the resistance to such an extent that the stimulus is worn down very little in getting to the brain. Consequently the stimulus acts with maximum intensity in the cortex.

All of the factors which have been mentioned so far have to do purely and simply with ease of gaining attention. The characteristics are such that nothing but entrance into consciousness is considered. In order to keep attention fixed on anything, various other factors must be taken into account.

CHAPTER IX

HOLDING THE ATTENTION

IN order to hold the attention, more than sheer intensity of stimulus is necessary. We know from practical life that we can hear and keep on hearing the low spoken words of a companion even amid the rattle and roar of a railroad train. We can attend to one voice though other voices in the neighborhood are louder. The reason is that we are more interested in the faint stimulus than we are in the more intense ones, and we set ourselves, or adjust ourselves favorably, for its reception. The information which we are receiving fits in with the general scheme of things in which we are interested and we intentionally shut out the competing stimuli, for we have no use for them at the time. Should they obtrude themselves for an instant, they are thrust out of the focus of consciousness and our attention swings back to the more fascinating topic. Attention is, then, a resultant of two forces, one being the selection of certain stimuli and the other being the inhibition or checking of others.

It is assumed that no brain cell is capable of doing two things at once. If it is active in one way, it cannot be active in another at the same time. Since all of our ideas and perceptions depend upon very complex associations of brain tracts and cells, and since with different ideas there is very frequently an overlapping of functioning of brain cells, it follows that but one sort of

association process can take place at once. There is an inhibition of the others.

In order to hold attention, it is necessary that the incoming stimulus shall give rise to an idea which somehow is bound up with a large number of other ideas. In other words, the attention process cannot continue for any length of time without arousing associations of some sort. If no other ideas are called up, the stimulus must issue almost immediately in movement. Where associations are aroused, the movement is frequently delayed.

The different sorts of ideas which we have are grouped and arranged in the mind in such a way that those which have any principle of connection existing between them are connected. All of our information concerning football is likely thus to be organized. Likewise our ideas concerning typewriters are unified and connected, and so on for various other sorts of ideas. These organized, systematized groups of ideas may be called 'apperceptive or apperceiving masses.' The holding of the attention depends upon linking up the present experience, whatever it may be, with the apperceptive masses with which it belongs. Once this is done, the attention is surely held for a longer time than it otherwise would be. As Pillsbury¹ says, "The new thing will draw the attention, but not to hold it for long, while the known both attracts the attention and holds it. We see the new as easily, perhaps, but we certainly see more in the old. . . . Furthermore, when the attention is held by the new thing it is frequently because the new is not entirely new, and the familiar serves with the new to attract attention."

We can attend to one thing for only a brief period, usually in the neighborhood of four seconds. If the sensation or perception has attained no particular mean-

¹ Pillsbury "Attention," page 50.

ing in that time, if it has aroused no associations of an interesting character, it lapses from consciousness. Should associations be aroused, however, which link the stimulus up with some of our needs, desires, or interests, different phases of the idea will present themselves one after the other, thereby lengthening manyfold the duration of the attention given to the object.

In order to keep attention, then, the incoming stimulus must be linked up with other ideas, derived either from our past experience or with our hereditary responses to situations. These, for want of a better term, may be called the subjective conditions of attention. As given by Pillsbury, they are:—idea in mind, purpose, attitude, education, social pressure, and heredity.

1. It is obvious that if we have a certain idea in mind, we are to that extent expectant. It is therefore easier for the incoming stimulus to enter consciousness. Suppose we have a large gray background covered with bits of colored paper, no two of the same color being of the same shape. Ideally, the pieces of colored paper should be of the same size, the same intensity, etc. They should present absolutely equal chances of being attended to as far as the objective factors are concerned. Other things being equal, the observer will see red or orange first with greater frequency than any other color, when they are exposed for a second or less. If, in another test, with a different card made up in a similar manner, he is told to look for green, he will see the green cards to the practical exclusion of all the other colors. Nor will he be able to tell the shapes of the greens. He was set mentally to receive the one kind of impression, and that was therefore what he received. Not only is this sort of impression received with greater readiness, but it tends also to last longer in consciousness, for the apperceptive masses which are linked up with the color are already partially active, thereby presenting easier

pathways of nervous conduction than are presented by the pathways for the associating of other colors.

2. The purpose or the attitude, being composed as it is of organized systems of ideas, may be thought of as a condition of attention for the same reason that an idea is. "If a man has several occupations, he will change his attitude towards the world as he changes his occupations, even if the changes take place at short intervals, and with the attitude there will be a variation in the object which is likely to catch his attention."¹ Other impressions which are not in harmony with the purpose or attitude at the moment will be neglected, or, if they do arrive in consciousness will receive no consideration.

To test the effect of the attitude, purpose, and idea, the following experiment was devised. Ten persons who had already taken part in the investigation on the attention value of color were put through the same test again, the only difference being that they were told to expect in every case to see red. Similarly, they were asked to keep thinking of green, yellow, and blue with subsequent exposures of the cards. The results were very striking, for they showed that on the average the color which was thought of was three times as likely to be seen as the same color under the conditions of the previous test.

3. Education or training is a condition of attention because education gives the individual certain attitudes toward the different ways of regarding the phenomenal universe and different purposes with respect to these different subdivisions. "Nearly every trade and profession has given its members a mind adapted to receiving impressions that would not be received by the great mass of men."² "Besides the influence which

¹ Pillsbury, "Attention," page 38.

² *Ibid.*, page 40.

practice has upon increasing the adequacy of attention, it has an almost equally marked effect upon determining the direction of attention at any given time, of determining the object that shall be attended to.

"The world is presented in almost infinite possibilities of perception, but each man takes from it only what his previous training has prepared him to receive. What he has seen at one time is very largely instrumental in determining what he shall see later, each experience prepares the way for another."¹

"Most seeing is the result of self-conscious purpose."²

4. Social pressure is simply the result of a special kind of training and should properly be a subdivision under 3.

5. Heredity, as was pointed out above, is primarily a condition of attention because of easy access to the brain by any stimulus. In the second place, however, if we react to a certain situation a certain number of times, we must derive a considerable amount of training from the sum total of these experiences which will result in the formation of an apperceiving mass with reference to it.

This completes the group of the conditions. The first, or objective conditions, show simply how to catch the attention. The other two groups of conditions show not only how to catch the attention but also how to hold it.

THE STRENGTH OF THE HUMAN INTERESTS

It has been said that we continue to attend only to those things which are interesting, those which arouse associations, either because of heredity or because of environment. In a general way we know that most

¹ Pillsbury, "Attention," page 43.

² *Ibid.*, page 45.

men are interested in a fight or combat of any sort. Such general impressions are very common, but not enough exact and scientific observations have been made to inform us of the relative strength of the different interests of the human being. In fact, it is a problem which is practically incapable of direct solution. By indirect means, however, it is possible to obtain a considerable amount of information in regard to the strength of the different human interests.

The method was first employed, in connection with advertising, by Gale¹ at Minnesota, and was later elaborated and worked out in very great detail by Hollingworth² and Strong³ at Columbia. The experiments were conducted as follows: a series of advertisements of the same commodity, differing in type of appeal, is given to a person who is asked to arrange them in the order in which they influence him to buy the commodity. The most persuasive advertisement, according to his notion, is called 1, the next most persuasive is called 2, the next 3, and so on until all the advertisements in the series have been arranged. Other individuals are later put through the same experiment, and when enough have been used, or the possibilities of the laboratory have been exhausted, the numbers representing the position of advertisement A are averaged, those for B are averaged and so on throughout the series. The smallest average shows that that advertisement possessed, in the minds of the subjects employed in the test, the greatest persuasive value. Likewise, the one possessing the largest average was the least persuasive, and the intermediate averages, arranged from lowest to highest, give the descending order of merit of the series of advertisements. This method is

¹ Gale, "Psy. Studies from the Univ. of Minn." pages 59 ff.

² Hollingworth, "Advertising and Selling," Chap. I.

³ Strong, "The Relative Merits of Advertisements."

very adaptable and is capable of revealing many things which could never be brought out otherwise. Since each different kind of commodity must, in the nature of the case, use somewhat different appeals, it was found impossible to obtain any ordered series of interests which would be sufficiently inclusive.

To get around this difficulty, Hollingworth¹ prepared a set of 50 appeals which were abstract in nature. No particular article was advertised, and each statement was to be considered merely in the light of an argument. These arguments were arranged by a group of 20 men and 20 women, and the relative order of persuasiveness was worked out. The underlying assumption is that the individual will consider that appeal as the most effective which is to the greatest degree linked up with his interests. It is, then, an indirect way of studying the relative strength of the main interests of the human being. It is unfortunate that so few subjects were used, for it is very doubtful if the results of 20 subjects indicate a fair cross section even of that phase of human nature represented by college students. However, elaborations of the test show that the order of arrangement made by 20 women, a month apart, was very similar, exhibiting a coefficient of correlation of plus .903. Likewise, the results of a group of ten women and another group of twenty showed a coefficient of correlation of plus .610. Because of this fact, it seems probable that the results are fairly trustworthy.

Exactly the same material was used in tests on 60 students at the University of Michigan, 40 being men and 20, women. The results of the two tests show a considerable amount of agreement, the coefficient of correlation for the two groups of men being plus 0.80, and for the two groups of women .615. The difference

¹ Hollingworth, *Psy. Rev.*, Vol. 18, pages 234-256.

between the results of the men and the women will show the sex differences in type of appeal.

Because the experiment is so definitely Hollingworth's,¹ his description of it will be quoted.

"These appeals were typewritten on separate slips of paper of uniform size. Each card bore a single word or pair of words, designed to emphasise the specific character and direction of the appeal, to reënforce the suggestion or argument offered by the text itself, and to insure so far as possible, the same attitude in all the observers in the presence of the respective appeals. By employing such material the following results were secured:

"1. Each appeal tends to be single and uncomplicated by other interests.

"2. Each is divorced from reactions to any article or brand as such.

"3. The elimination of cuts and the use of the same general style and expression lends homogeneity to the group.

"4. A wider range of specialized isolated appeals is secured."

The series of 50 abstract appeals, as given by Hollingworth, follows:—

"1. 1K6. *Scientific*. — Our 1K6 article is manufactured by approved scientific methods and scientifically tested processes, by technically trained men, working under the constant supervision of experts."

	MEN	WOMEN
East	2	2
West	4	29

"2. 1W5. *Durability*. — Combine utility with durability by using 1W5. It lasts one third longer than the ordinary article. Stands the wear and tear of constant

¹Hollingworth, *Psy. Rev.*, Vol. 18, pages 241-242.

use, combining equal quality with greater permanence and longer service."

	MEN	WOMEN
East	6	1
West	3	2

"3. 1F3. *Sanitary*. — This is the only sanitary 1F3 on the market. Put up in germ-proof, dust-proof, hermetically sealed packages, and made of strictly pure and unadulterated ingredients."

	MEN	WOMEN
East	3	5
West	7	6

"4. 2D8. *Efficiency*. — Actual energy, earning power, is what counts in modern business. The day is past when recognition rested on pull and social influence. 2D8 will increase your efficiency 25 per cent. By no other means can you secure such prompt and sure increase of producing capacity."

	MEN	WOMEN
East	8	7
West	2	11

"5. 1T8. *Time*. — Save the minutes and the hours will save themselves. Time is money. Our latest 1T8 is the biggest time-saver on the market. Does in twenty minutes what requires, with other brands, a half an hour."

	MEN	WOMEN
East	14	3
West	11	8

"6. 1N6. *Appetizing*. — Try 1N6. It comes fresh from the field and its appetizing flavor is a treat to the palate. It makes a dainty breakfast, a delightful luncheon, and a delicious desert."

	MEN	WOMEN
East	5	13
West	6	12

"7. 2B7. *Family Affection*. — A final day must come to every man, and no one wants to see his children left dependent on mere accident. You owe a duty of provision and foresight to your family. A 2B7 will guarantee their comfort and security when you are gone."

	MEN	WOMEN
East	1	17
West	1	30

"8. 1Z5. *Value*. — Absolutely superior quality and finer finish. 1Z5 may cost a little more, but it's worth the difference. One trial will convince."

	MEN	WOMEN
East	16	4
West	13	4

"9. 2L7. *Evolution*. — Our latest 2L7 is the result of generations of experience and experiment. After years of trial 2L7 stands distinctly in a class by itself as the final product of a long evolution, — the climax of mechanical genius."

	MEN	WOMEN
East	12	11
West	5	27

"10. 2C8. *Ambition*. — There's always room higher up. Capable leaders are always in demand. Why stay among the incompetent when 2C8 will bring you a better position and increase your salary? The man who uses 2C8 is sure of recognition and rapid promotion."

	MEN	WOMEN
East	18	6
West	12	7

"11. 2F6. *Self-defence*. — Forearmed is forewarned. Your life is always threatened by some lurking danger or another. With 2F6 in your home you are always

secure and able to protect the rights and person of yourself and of those whose safety is your chief concern."

	MEN	WOMEN
East	10	15
West	20	14

"12. 1R4. *Reputation.* — Established in 1870, we have been for 40 years the leading manufacturers of 1R4 in the country. We have the longest and must enviable record of any house, in our line, on the continent."

	MEN	WOMEN
East	21	9
West	8	22

"13. 2E9. *Guaranteed.* — Our well-known trademark guarantees quality and satisfaction. All our 2E9 is strictly warranted high grade. Your money refunded if 2E9 does not accomplish all we claim for it.

	MEN	WOMEN
East	20	10
West	16	23

"14. 1P5. *Stimulating.* — 1P5 fortifies the body against inroads of toil and disease, gives new life and vigor to tired muscles and nerves, and removes unnecessary strain and fatigue."

	MEN	WOMEN
East	41	12
West	42	36

"15. 1V3. *Safety.* — Avoid danger by using the only absolutely safety built, accident-proof 1V3. Do not court danger by taking chances. This is the only 1V3 in which you get all the protection and none of the risk."

	MEN	WOMEN
East	7	26
West	14	3

"16. 1E5. *Popular*. — The name is on all tongues. You will find 1E5 in the ladies' dressing room, in the scholar's study, in the nursery, in the kitchens of the humble, in crowded Eastern cities and on limitless Western Plains. Used in millions of homes and everywhere it is on top."

	MEN	WOMEN
East	4	29
West	22	38

"17. 2R5. *Economize*. — A dollar saved is a dollar earned. 2R5 will save you money. Why not cut down expense items and start a bank account. 2R5 will help you do it."

	MEN	WOMEN
East	19	14
West	23	20

"18. 1Q3. *Maternal Love*. — Nothing is too good for baby. 1Q3 comforts and soothes the little chap and makes of babyhood one happy playtime. Assures the children's health and enjoyment."

	MEN	WOMEN
East	15	18
West	10	16

"19. 1J4. *Modernity*. — Strictly up-to-date design with all the latest improvements. 1J4 is equipped with every advantage and ingenious device known to recent invention."

	MEN	WOMEN
East	13	22
West	19	28

"20. 1C3. *Health*. — As a general tonic, 1C3 is unequaled. It nourishes the system, enriches the blood, builds up firm, healthy tissue and gives tone and color to the whole body. Prevents grippe and pneumonia."

	MEN	WOMEN
East	30	8
West	37	21

"21. 1X9. *Quality*. — Why keep on wasting money when for the price of the ordinary article you can get our superior 1X9. Goes farther and does the work better than any other."

	MEN	WOMEN
East	22	16
West	39	19

"22. 1A7. *Elegance*. — Nothing contributes so strongly to the luxurious comfort of the modern home as 1A7. Its presence gives dignity and elegance to the whole and creates an atmosphere of daintiness and distinction."

	MEN	WOMEN
East	11	30
West	27	10

"23. 1G2. *Bargain*. — No 1G2 was ever offered before for the money. As good as any others and only two thirds their cost. We are enabled to offer this proposition only by virtue of our mammoth plant and enormous capacity. Why pay more?"

	MEN	WOMEN
East	17	28
West	40	33

"24. 2Q7. *Sympathy*. — Kindness is the first law of humanity. Much of the pain and discomfort inflicted on dumb animals could be relieved by using 2Q7. Be humane to your beast. Use 2Q7."

	MEN	WOMEN
East	9	37
West	9	1

"25. 2O8. *Necessary*. — You cannot afford to do without 2O8. It is indispensable in your home, in your

business, in your recreation. Every man, woman and child needs it constantly."

	MEN	WOMEN
East	27	20
West	38	34

"26. 2W8. *Middlemen*. — Why pay middlemen's profit? Buy direct from the manufacturer and keep the profits yourself. We make 2W8 and ship straight to the consumer."

	MEN	WOMEN
East	26	23
West	24	17

"27. 2Z7. *Courtesy*. — Nothing is more discourteous than an offensive breath. 2Z7 cleanses the system, purifies the blood, and sweetens the breath."

	MEN	WOMEN
East	25	27
West	25	15

"28. 2T9. *Remarkable Growth*. — The superior quality of 2T9 is demonstrated by the rapid development of our business.

Total Capital, 1890 . . .	\$ 15,273.00
Total Capital, 1895 . . .	85,896.00
Total Capital, 1900 . . .	240,142.00
Total Capital, 1905 . . .	703,279.00
Total Capital, 1910 . . .	3,875,639.00

	MEN	WOMEN
East	36	19
West	15	25

"29. 1S6. *Amusement*. — Don't look bored! Buy 1S6. The most side-splitting, mirth-provoking novelty ever devised. Amuses old and young. Affords fun and laughter from morning till night."

	MEN	WOMEN
East	23	34
West	28	13

"30. 2X4. *Hospitality*. — Don't be content with envying the successful hostess when you can secure the same keen pleasure for yourself. The homes equipped with 2X4 are known far and wide for their generous comfort and open hospitality."

	MEN	WOMEN
East	34	24
West	21	5

"31. 2Y9. *Youth*. — The fountain of eternal youth has never been discovered, but it has been demonstrated beyond a doubt that 2Y9 restores youthful vigor, quickens the step, and gives new life to both mind and body."

	MEN	WOMEN
East	44	39
West	33	32

"32. 2V7. *Hunting*. — Just the thing for the fishing and hunting trip. Insures a lively spirit in the field and solid comfort in the camp. No vacation outfit is complete without 2V7."

	MEN	WOMEN
East	28	31
West	18	18

"33. 1O9. *Social Standing*. — The use of 1O9 is the stamp of the gentleman. It is always found where social standards are high, and is the favorite of men and women of discriminating taste and culture."

	MEN	WOMEN
East	24	38
West	30	35

"34. 2S8. *Enormous*. — We have the largest establishment engaged in the production of 2S8 in the United States. Capital, \$12,000,000.00. Factories or branch establishments in every prominent city in the country."

	MEN	WOMEN
East	38	25
West	31	40

"35. 1Y2. *Cheap.* — Buy 1Y2. Costs just one half the price of its competitors. Why spend two day's wages when one day's work will bring our high-class article to your home?"

	MEN	WOMEN
East	33	32
West	46	44

"36. 2J9. *Get the Genuine.* — Avoid substitutes. Many may pattern after us, but none can equal us. As a matter of fact 2J9 has many imitators, but there is only one standard, genuine article. Ask for 2J9."

	MEN	WOMEN
East	48	21
West	35	31

"37. 2P6. *Progress.* — Don't be a dead one. Use 2P6 and be up to date. It is an essential part of every progressive modern establishment."

	MEN	WOMEN
East	29	40
West	17	9

"38. 2A3. *Sale.* — We are closing out our large stock of 2A3 at a great sacrifice, to make way for next year's goods. For the next ten days 2A3 will be sold for less than cost. Come early. Don't miss this rare opportunity."

	MEN	WOMEN
East	31	41
West	26	42

"39. 2M5. *Excel.* — Don't be a wall flower. Use 2M5 and you will be the envy of all your friends. It

gives that look of superiority which everyone recognizes and respects, but which few possess."

	MEN	WOMEN
East	42	36
West	45	43

✓ "40. 2K4. *Civic Pride*. — We appeal to your civic pride. 2K4 is made in your own city, by local workmen, and backed by strictly home capital. Encourage home industry. Use 2K4."

	MEN	WOMEN
East	45	33
West	34	26

✓ "41. 1H9. *Patriotism*. — Our 1H9 product is made for American consumers, of strictly American-grown materials, by an American firm employing exclusively American labor and American capital."

	MEN	WOMEN
East	43	35
West	44	24

✓ "42. 2G4. *Union Made*. — We stand for organized labor. 2G4 is a strictly union-made product, built by union labor, of union-raised material, and sold exclusively by all union dealers."

	MEN	WOMEN
East	32	49
West	49	50

✓ "43. 1M8. *Recommendation*. — Here's what the world-famous tenor of the Metropolitan Opera House says of 1M8:

"I have used your product constantly and have continued to derive great benefit from it.

(Signed) "ENRICO CARUSO."

	MEN	WOMEN
East	37	46
West	29	45

"44. 1D8. *Nobby*. — Our 1D8 products are made by our smartest designers, especially for those who love nobby and dressy styles. Exclusive patterns and dashing cuts, unequalled in snap and color."

	MEN	WOMEN
East	35	48
West	43	37

"45. 1B5. *Style*. — Our new 1B5 is fresh from the center of fashion, representing the latest creation of accepted artists of style, in exclusive designs and dressy patterns, *chic* and strictly *à la mode*."

	MEN	WOMEN
East	40	47
West	36	41

"46. 1L7. *Royalty*. — 1L7 will be found in most of the houses of European royalty. We are commissioned by official warrant to supply 1L7 to his Excellency, the Emperor of Germany."

	MEN	WOMEN
East	39	50
West	32	49

"47. 2N7. *Admiration*. — Do you desire the admiration of those you meet? Use 2N7 and you will be the constant center of attraction to adoring and envious eyes. No jewels or marvels of costuming can add so much to your appearance as 2N7."

	MEN	WOMEN
East	47	43
West	50	48

"48. 2H8. *Imported*. — All 2H8 products are strictly imported and foreign stamped. 2H8 comes straight from European makers, and its superior quality is thereby guaranteed."

	MEN	WOMEN
East	46	45
West	47	47

"49. 1U4. *Beauty*. — Are you as pretty as you might be? No one wants to be homely. The continued use of 1U4 removes the undesirable blemish, beautifies the complexion, renders the form attractive, and gives charm to the figure."

	MEN	WOMEN
East	50	42
West	48	46

"50. 2U3. *Personality*. — Everyone desires to be attractive to the opposite sex. 2U3 will give you distinctive presence and engaging personality which is irresistible in its appeal."

	MEN	WOMEN
East	49	44
West	41	39

The results, showing the order of merit of the different appeals, is given below for the Eastern and Middle Western subjects. The results for men and women are given separately.

APPEAL	E MALE	W MALE	E FEMALE	W FEMALE
1. Scientific	2	4	2	29
2. Durability	6	3	1	2
3. Sanitary	3	7	5	6
4. Efficiency	8	2	7	11
5. Time saved	14	11	3	8
6. Appetizing	5	6	13	12
7. Family affection . . .	1	1	17	30
8. Value	16	13	4	4
9. Evolution	12	5	11	27
10. Ambition	18	12	6	7
11. Self-defense	10	20	15	14

APPEAL	E MALE	W MALE	E FEMALE	W FEMALE
12. Reputation	21	8	9	22
13. Guaranteed	20	16	10	23
14. Stimulating	41	42	12	36
15. Safety	7	14	26	3
16. Popular	4	22	29	38
17. Economize	19	23	14	20
18. Parental love	15	10	18	16
19. Modern	13	19	22	28
20. Health	30	37	8	21
21. Quality	22	39	16	19
22. Elegance	11	27	30	10
23. Bargain	17	40	28	33
24. Sympathy	9	9	37	1
25. Necessary	27	38	20	34
26. Middleman	26	24	23	17
27. Courtesy	25	25	27	15
28. Growth	36	15	19	25
29. Amusement	23	28	34	13
30. Hospitality	34	21	24	5
31. Youth	44	33	39	32
32. Hunting	28	18	31	18
33. Social standing	24	30	38	35
34. Enormous	38	31	25	40
35. Cheap	33	46	32	44
36. Genuine	48	35	21	31
37. Progress	29	17	40	9
38. Sale	31	26	41	42
39. Excel	42	45	36	43
40. Civic pride	45	34	33	26
41. Patriotism	43	44	35	24
42. Union made	32	49	49	50
43. Recommendation	37	29	46	45
44. Nobby	35	43	48	37
45. Style	40	36	47	41
46. Royalty	39	32	50	49
47. Admiration	47	50	43	48
48. Imported	46	47	45	47
49. Beauty	50	48	42	46
50. Personality	49	41	44	39

Combining the results of the Eastern men and women and the Western men and women, the following table is obtained.

THE RANKING OF DIFFERENT APPEALS WITH DIFFERENT GOODS

APPEAL	APPEAL	APPEAL
Durability 1	Elegance 18	Genuine 35
Sanitary 2	Modern 19	Civic pride . . . 36
Efficient 3	Hospitality . . . 20	Sale 37
Appetizing 4	Middleman . . . 21	Patriotism . . . 38
Time saved 5	Courtesy 22	Youth 39
Value 6	Popular 23	Cheap 40
Scientific 7	Growth 24	Recommendation . 41
Ambitious 8	Hunting 25	Nobby 42
Family affection . 9	Progress 26	Style 43
Safety 10	Quality 27	Excel 44
Evolution 11	Health 28	Royalty 45
Sympathy 12	Amusement . . . 29	Personality . . . 46
Parental love . . 13	Bargain 30	Union made . . . 47
Self-defense . . . 14	Necessary . . . 31	Imported 48
Reputation . . . 15	Social standing . 32	Beauty 49
Guaranteed . . . 16	Stimulating . . . 33	Admiration . . . 50
Economize 17	Enormous 34	

It may be considered as showing the relative strength of the various interests of the subjects when *they are in the advertising frame of mind*, which is exactly the sort of information which the advertising man should desire. This frame of mind is brought about by the fact that they know that they are being experimented upon in an advertising experiment.

These appeals can be applied only to those commodities for which there is a felt need on the part of the reader. The average man does not care whether a wireless telephone will transmit messages for one mile or a thousand miles, for the wireless telephone is not one of his present needs. Therefore, an appeal to its durability, its scientific manufacture, its quality, would be a waste of space. Such information gives the reader an interesting bit of scientific gossip, but would not sell the article before a need was felt for it. The arousing of consciousness of the need for a given commodity is a

very different psychological process, in which the selfish or the social motives must be appealed to.

Obviously, the appeals mentioned in the above tables are capable of being grouped together, like going with like. In general, there seem to be seven general classes into which the appeals may be divided, and under these seven main heads, there are several sub-heads. As an attempt in this direction, the following is submitted :

TYPES OF APPEALS

- I. Description of article.
 - A. Definite information concerning intrinsic worth.
 - B. Popular, stylish, imported, etc.
 - C. Evolution, growth, size of plant, etc.
 - D. Recommendation, used by prominent persons.
 - E. Process of manufacture.
- II. Personal appeal.
 - A. Ambition, progressiveness, etc.
 - B. Welfare of individual.
 - C. Amusement.
 - D. Beauty.
- III. Social appeal.
 - A. Sympathy.
 - B. Social relation to others.
 - C. Coöperation with an organized group.
- IV. Mixed social and personal.
 - A. Arouse admiration, attractive personality.
- V. Family.
- VI. Economy.
- VII. Something for nothing.
 - A. Souvenir free.

Their relative importance is shown in the following table:

TYPES OF APPEAL

	MALE		FEMALE		BOTH	
I. A. Description of article Definite information concerning intrinsic worth	7.5	1	7.45	1	7.5	1
III. A. Social Appeal — Sympathy	9.0	2	19.00	4	12.0	2
V. Family	10.9	3	20.2	5	13.0	3
II. A. Personal appeal Ambition and progress .	19.0	4	15.5	3	17.0	4
II. B. Personal appeal Welfare of individual .	21.1	5	15.3	2	17.6	5
I. C. Description of article Evolution, growth, size of plant, etc.	22.9	6	24.5	8	23.0	6
III. B. Social appeal — Social relation with other individuals	26.3	9	24.0	6	24.7	7
II. C. Personal appeal Amusement	24.3	7	24.0	7	27.0	8
VI. Economy	25.2	8	31.1	9	28.7	9
I. B. Description of article Popular, stylish, imported, etc.	32.4	10	34.9	10	34.4	10
III. C. Social appeal. Coöperation with an organized group	41.1	12	36.1	11	40.3	11
I. D. Description of article Recommendation, used by prominent persons	34.2	11	47.7	14	43.0	12
II. D. Personal appeal Beauty, etc.	43.8	13	39.8	12	44.0	13
IV. Mixed social and personal Arouse admiration, attractive personality, etc.	45.7	14	42.1	13	46.7	14
I. E. Process of manufacture .	—	—	—	—	—	—
VII. Souvenir free	—	—	—	—	—	—

The significant sex differences are tabulated in the following table:

SEX DIFFERENCES

FEMALE APPEAL	AMOUNT OF DIFFERENCE	MALE APPEAL	AMOUNT OF DIFFERENCE
20. Health	19.0	7. Family affection	22.5
14. Stimulating . . .	17.5	16. Popular	20.5
36. Genuine	15.5	46. Royalty	14.0
41. Patriotism . . .	14.0	38. Sale	13.0
30. Hospitality . . .	13.0	1. Scientific	12.5
21. Quality	13.0	43. Recommendation	12.5
8. Value	10.5	9. Evolution . . .	10.5
40. Civic pride . . .	10.0	24. Sympathy . . .	10.0
10. Ambition	8.5	33. Social standing .	9.5
5. Time saved . . .	7.0	42. Union made . . .	9.0
25. Necessary	5.5	19. Modern	9.0
26. Middleman . . .	5.0	6. Appetizing . . .	7.0
49. Beauty	5.0	45. Style	6.0

Several of these sex differences are significant. (1) Women are apparently impressed much more by the personal appeal than are the men. On the average, they appear to be more ambitious, not only for themselves but for their families.

(2) The economy argument appeals to the men more than it does to the women, possibly because the men are more likely to be the earners. The effect which differences in wording of the appeal have is interesting. If a product is announced as a "bargain" or as "cheap" the women are more attracted by the appeal than the men. On the other hand, if it is a "special sale" which is featured, the men are much more interested than the women.

(3) Men are influenced more by indirect arguments than are the women. This is shown by the higher ranking of such appeals as the size of the plant, the remarkable growth of the business, etc. These give him a chance to use his judgment and infer that the article must be a superior brand. The man, also, is much more likely to accept the judgment of some other person, of some

authority who is supposed to know what he is talking about.

(4) Family appeals are likely to be ranked higher by the men than by the women.

(5) The patriotism appeal is stronger with the women than it is with the men. They seem to be more influenced by the welfare of the group, large or small, to which they belong.

Since abstract appeals were used to avoid reference to any particular commodity, for no one commodity will be able to use them all, it will be interesting to see how the abstract results compare with those where particular advertisements are used.

A considerable amount of work has been done by Strong, Hollingworth, and Starch to determine the best kind of appeal to make with such goods as breakfast foods, pianos, clothes, jewelry, etc. In all a fairly large group of commodities have been tested.

Their results as worked out in accordance with the classification suggested on page 144, are given in the following table. The first 10 columns present the data obtained from college students and represent relatively homogeneous material. The last column gives the results of the test made upon 97 farmers. This group is very different from the average college group in aims, interests, and education, so it is not surprising that a different order was obtained.

In general, if the numbers in the last ten columns decrease regularly, an exact correspondence is obtained between the abstract and the concrete data.

Several significant details appear from a study of the table. (1) In the first place, there seems to be a definite relation between the cost of a commodity and the persuasiveness of the economy appeal. In the case of vacuum cleaners and pianos, in a sense luxury articles, economy is an important consideration. With the

cheaper articles, this particular appeal is ranked much lower.

(2) With foods, the recommendation of influential persons is of greater value than with any of the other commodities which are listed.

(3) The selfish appeal is the strongest one which can be used with soap and shoes, and in general, with those commodities which affect the appearance of the user.

Goods		ABSTRACT	BREAKFAST FOOD	CLOTHES	SHOES	NAILS	TYPEWRITERS	JEWELRY	SOAP	VACUUM CLEANERS	PIANOS	SOAP AS RANKED BY 97 FARMERS
Appeal												
I.	A.	1	1	1	2	1	2	1	2	2	5	9
III.	A.	2	—	—	—	—	—	—	—	—	—	—
V.	.	3	7	—	—	—	—	—	4	3	1	2
II.	A.	4	—	2	—	—	1	—	—	—	—	—
II.	B.	5	2	—	1	—	3	—	1	4	—	6
I.	C.	6	6	5	3	3	4	2	5	5	—	4
III.	B.	7	—	6	—	—	—	—	—	—	—	—
II.	C.	8	—	—	—	—	—	—	—	—	3	—
VI.	.	9	—	7	7	4	5	—	8	1	2	5
I.	B.	10	5	3	5	2	—	3	6	—	—	3
III.	C.	11	8	4	6	5	6	—	—	—	4	—
I.	D.	12	3	—	—	6	7	—	7	—	6	8
II.	D.	13	—	—	—	—	—	—	3	—	—	7
IV.	.	14	—	—	4	—	—	—	—	—	—	—
I.	E.	—	4	—	—	—	—	—	—	—	—	—
VII.	.	—	9	—	—	—	—	—	9	—	—	1

A different type of experiment was performed to throw some additional light upon the problem of the relative strength of the different interest incentives in arousing attention. In this case, pictures were used. The technique and the method were the same that were employed in the previous attention experiments. A

series of cards, divided to represent the quarter page, was prepared; and in the lower right-hand corner of each was pasted a picture. The other three corners were occupied by squares of color. These cards were exposed for a fraction of a second and the observer was requested to write down everything that entered consciousness, in the order in which it came. Fifty-two men and seventy-eight women were experimented upon. The total number of times each picture was seen first was used as the measure of its attention value.

Since the pictures were of different areas, size was allowed for in the following way. The attention value of size for this position on the page, the lower right corner, was determined and a curve drawn. By interpolating the various points on the curve, it was possible to obtain the probable number of times that a color of a certain area in that position would be seen first. The total number of credits which the picture received was compared with the number which a color of the same size would have received. In this way, the attention value of the picture was determined. Colored pictures were not used, so no correction was necessary on that score.

The pictures were in black and white, so that the total impression produced by them was of a gray. As a consequence, the contrast made with the white background was less than with the colors. As a result, it was found that the pictures had less attention value than the colors in the same position.

Several of the pictures can be grouped together, forming one general class. In giving the results, this will be taken account of for the purpose of simplification. In the table below the figures show that the picture was seen first so many times more or less than a color of the same size. When no sign is used, it will indicate that the picture had a greater attention value than the color; when a minus sign precedes the number, it will indicate that the picture was seen less frequently than the color.

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PICTURE	WOMEN	MEN	BOTH
Stocking	3.2	4.0	7.0
Stocking	- 2.0	0.0	- 3.0
Shoes	6.3	- 1.2	4.6
Slippers	4.5	2.5	7.0
Shoes	- 7.5	- 1.3	- 9.0
	0.9	0.78	1.3
Victrola	- 17.1	- 1.0	- 18.0
Steamer	- 12.0	- 5.7	- 17.0
Phone	- 15.0	- 3.8	- 18.8
Train	- 6.5	3.7	- 3.5
Watch	- 5.1	1.0	- 4.0
Watch	1.0	2.5	3.5
Revolver	- 9.0	- 2.0	- 10.5
Revolver	- 5.0	- 2.1	- 6.8
Camera	- 8.4	- 5.5	- 14.0
Auto	- 8.0	1.2	- 6.5
Auto	- 7.4	- 0.7	- 8.0
Typewriter	- 1.5	0.5	- 1.0
Pool table	- 7.0	- 4.0	- 10.5
Chair	- 2.0	0.4	- 2.2
	- 7.35	- 1.1	- 8.35
Books	- 12.3	- 4.3	- 16.0
Books	- 7.0	- 4.0	- 10.5
	- 9.7	- 4.2	- 13.3
Moose	- 16.6	- 2.4	- 19.1
Cows	- 3.6	- 2.3	- 7.0
Chick	- 6.0	- 4.0	- 10.0
Dogs	- 13.8	- 5.9	- 19.2
Bull	- 7.0	- 4.7	- 11.0
	- 9.4	- 3.86	- 13.3
Bull Durham Sack	- 16.5	- 2.4	- 19.0
Velvet Tobacco Tin	- 16.7	- 5.0	- 21.0
	- 16.6	- 3.7	- 20.0

PICTURE	WOMEN	MEN	BOTH
Man	- 25.4	- 6.7	- 32.0
Man — B. V. D.	- 13.6	- 9.4	- 23.0
Man	- 10.5	- 6.0	- 16.0
Man	- 0.3	- 4.8	- 5.4
Man	1.0	1.3	2.5
	- 9.8	- 5.1	- 14.8
Girl	- 23.6	- 9.5	- 33.0
Girl	- 18.3	- 2.3	- 20.0
Girl	- 13.1	- 3.3	- 16.2
Girl	- 8.3	- 3.3	- 11.0
	- 15.7	- 4.6	- 20.0
Boy and Girl	- 28.5	- 13.4	- 42.2
Candy	- 33.0	- 14.2	- 47.0
Chocolates	- 9.0	- 5.2	- 14.4
Occident Flour	- 22.0	- 5.2	- 27.0
Shredded Wheat	- 9.5	- 5.3	- 15.0
Nabisco	- 18.0	- 7.4	- 15.0
Coffee Can	- 2.2	- 4.6	- 7.3
	- 15.6	- 6.9	- 21.0

Putting the summaries together, the following table is obtained:

PICTURE	WOMEN	MEN	BOTH
Wearing apparel	0.9	0.7	1.3
Commodity — tools	- 7.4	- 1.1	- 8.4
Books	- 9.7	- 4.2	- 13.3
Animals	- 9.4	- 3.9	- 13.3
Men	- 9.8	- 5.1	- 14.8
Tobacco	- 16.6	- 3.7	- 20.0
Women	- 15.7	- 4.6	- 20.0
Foods	- 15.6	- 6.9	- 21.0
Boy and Girl	- 28.5	- 13.4	- 42.2

The results show that of the pictures used, those most likely to catch the attention are of shoes and stockings. The picture of a commodity partaking of the nature of a tool, a mechanical contrivance of some sort, is next on the list. Books and animals come next, followed by pictures of men. Pictures of women and of tobacco are tied for next place, foods come next, whereas the famous picture, "A skin you love to touch," was ranked last.

Some few sex differences appear, women ranking pictures of men relatively higher and the men being more attracted by pictures of women. Men's attention was much more quickly caught by tobacco pictures and the women's somewhat more easily by pictures of food.

CHAPTER X

ASSOCIATION

THE advertiser can expect immediate action in response to his advertisement in a very small percentage of cases. Usually, a period of some duration elapses between the reading of the advertisement and the purchasing of the commodity, provided that it is purchased at all. Under these conditions the reader or possible purchaser may do one of three things. He may either cut the advertisement out of the magazine or paper and carry it around with him until occasion for the purchase arises, or he may note down on paper some salient feature of the advertisement, or he may remember it. Usually, the third method is employed. It is imperative therefore that the advertiser should know how to make his advertisements remembered by the reader. Since the basis of all memory is association, it is necessary that we understand the laws of association, both the formation of associations and the laws of recall.

Formation of Associations. — The general law of the formation of associations is that if two ideas, A and B, enter consciousness together, or in immediate succession, whenever, at a later time, one appears in consciousness, the other will tend to follow it. Whenever A appears in consciousness, B will tend to appear immediately after it. If the idea "soap" appears, it is very likely to be followed by "Ivory"; if the original idea is "gun," "Winchester" is very likely to be the next idea that enters consciousness. The law as stated is

simple, easily understood, and will be questioned by no one. The explanation of the law offers very much more difficulty. The probable explanation is in terms of the action of the brain. There is for instance no *a priori* reason why the sound of a bell should call up a mental picture of the clock or the tower or the building which contains the bell, but such is often the case. The sound of the bell and the appearance of the container of the bell are not at all alike. There is nothing which should connect them rather than anything else which might occur. A possible principle of connection is to be found in the fact that the two ideas enter consciousness together or in immediate succession. This means that the two regions of the brain which are concerned with the ideas are active simultaneously or in succession. If we take the example of the sound of a bell calling up a visual image of a tower, the formation of the association is somewhat as follows. The sound of the bell is heard, owing to the stimulation of the auditory region of the brain; for the vibrations in the outer air are transformed into a nerve current in the ear and this nerve current is carried by means of the auditory nerve to the brain. Once in the brain, it does not cease its activity, but sooner or later goes over to the motor region, arousing some movement. The movement in this case is a turning of the head or body until the source of the sound is determined. When the tower is seen, a nerve current goes from the retina of the eye to the visual region of the brain and we connect the two experiences in consciousness. Thus the two regions in the brain, the visual and the auditory, are active at the same time or in immediate succession. In addition to arousing the movement, the nerve current which came to the auditory region goes also to the association area which connects the various sensory regions. Once there, it is possible for the nerve current to go in any number of directions if chance

alone were operative. But while the auditory energy is in the association region, the visual region is stimulated. Any region which is active behaves like a partial vacuum, pulling other bits of nerve current towards itself. Because of this fact, the current which came from the auditory region is directed towards the visual region. In the course of its going, it passes over several synapses, lowering their resistance as it goes. A second like experience will lower the resistance still further, until finally there is formed a pathway of low resistance between the two regions. Subsequently, when the same auditory region is stimulated, the nerve current, which goes along the path of least resistance, will go directly to the visual region, arousing the idea of the tower. This is the way in which all of our associations are formed, because of the simultaneous or successive action of two brain regions. The association, consequently, is nothing more than the formation of a pathway of low resistance between two brain regions.

Laws of Recall. — The only way of testing the strength of an association is in terms of recall. Recall is possible only when there is a pathway of low resistance between two brain regions, so that a nerve current getting into one will automatically go to the other. It must be understood throughout, that ideas are never retained nor are they associated. Association exists only between brain tracts, and ideas are the result of the re-stimulation of modified brain regions. A good analogy is to be found in the case of the phonograph record. Sound is not stored in the record; nothing is there but a series of tiny indentations which are connected by a groove. After the record is made, a blunt needle is passed over the indentations, causing a vibration of the diaphragm to which the needle is attached and a re-arousal of the sound which made the original indentations.

Similarly, we may think of the nerve current as having made a path between two brain regions and in addition as having modified each in a certain definite way. A new nerve current gets into one of the regions and, in passing over the modifications, it re-arouses the consciousness which was present when the modifications were made. Then going along the pathway of low resistance, it passes on to the other modified brain region, re-arousing the consciousness which was there when that series of modifications was made. It is only in this way that ideas are retained and recalled. The recalled idea is probably never a complete and exact copy of the original, but is sufficient to represent it in part or in whole.

Recall depends upon several groups of principles. In the first group there are four — contiguity, succession, similarity, and contrast. In the second, there are four — primacy, recency, frequency, and intensity. In the third there are six — idea in mind, purpose, attitude, education, social pressure, and heredity, the same which were found to be the subjective conditions of attention. Each of these laws is simply a way of accounting for the relative lack of resistance at any time in the various possible pathways in the nervous system.

By contiguity and succession are meant recall owing to simultaneous or successive entrance into consciousness of two ideas. If two ideas which enter consciousness are connected by a pathway of low resistance, it ought to follow that when one was present in consciousness, the other one would be called up. This follows from the law of the formation of associations. It usually happens, however, that each idea which we have is associated not only with one, but with many others. Soap may call up Pear's, Babbitt's, Packer's Tar, or Cuticura, as well as Ivory. Gun may call up Sharp, Savage, or Marlin, as well as Winchester. Each of these associations has

been formed by either contiguity or succession, and so has, other things being equal, an equal chance of being brought to mind when soap or gun happens to be thought of. The other laws are to explain why one and then another associate may be recalled at different times.

Association by similarity is a complex depending upon two associations by contiguity with a common element. An example will make this clear. If we say that a darkey is black, that is an association by contiguity. If we say that the ace of spades is black, that is another association by contiguity. If we put the two together, and say that the darkey is as black as the ace of spades, that is an association by similarity, the common element being the word black. There is a pathway in the brain connecting the "darkey" region and the "black" region and another connecting the "black" region with the "ace of spades" region. In this way it is possible to connect mentally two things which never could have been associated by contiguity or succession.

Similarly, in association by contrast, there must be a common element between two associations by contiguity. We find it impossible to contrast warm and sour, or loud and cold, for these experiences have nothing in common. We can, however, contrast big and little, rich and poor, for in these cases, we encounter a common element, in the first case *surface* being understood, and in the second, *some standard of wealth*.

The second set of laws determine why one thing is thought of rather than some other. They show why one pathway which has been formed by contiguity or succession is more permeable at some particular instant than some other. Any brain pathway is liable to fluctuations in its resistance. Lack of use will raise resistance, use will lower it. Fatigue will increase it. The laws of intensity, recency, frequency, and primacy are

simply ways of stating the reasons for the relative amount of resistance which exists at any time.

An intense stimulus will decrease the resistance more than a milder one, so that those two regions in the brain which have been joined by intense stimuli will tend to have a very permeable pathway for some little time after the connection is made. By the term intensity of stimulus several things may be meant. Sheer amount of stimulus, as a very bright light, is one meaning; a large stimulus, as a full page advertisement, is another; and a stimulus which endures for some little time, is still a different meaning. Lastly, if the stimulus arouses an emotion, it is referred to as an intense stimulus, for usually an emotion means a large amount of nerve action going on in the cortex of the brain. Any of these conditions will tend to make a relatively permanent connection of low resistance between two brain tracts.

Recency of stimulation is effective because the resistance offered by the pathway is temporarily decreased, though it may soon become greater.

Frequency of stimulation or connection is another factor, for if the pathway is traversed frequently by a nerve current, the resistance is being constantly worn down, and there is no very great chance for it to increase.

Primacy as a factor is more difficult to explain, being probably a complex of certain others. Any first experience is likely to be accompanied by considerable emotion; consequently, primacy would reduce on the one hand to intensity. In the second place, our earlier experiences serve as patterns or standards for our subsequent ones. They must be frequently referred to; and, consequently, primacy may be operative for the same reason that frequency is. Experiment shows that the factor of primacy is of considerable importance.

“ When two associations are of equal strength but of unlike age, repetitions act more effectively on

the elder than on the younger. . . . When two associations are of equal strength, but of unlike age, time has a more marked effect on the younger than on the older association."¹

The relative strength of these four factors is a matter of some importance for the advertising man. Miss Calkins² performed an experiment to test the relative strength of association by recency, frequency, vividness, and primacy. Her first set of material consisted of colors and numbers, the requirement being to establish an association between them. The color was shown first and immediately after the number appeared. After an eight-second interval, another color was shown, followed immediately by another number. The two things which were to be associated were given in immediate succession, while a longer pause separated the stimuli which were not to be associated. In another part of the experiment, the color and the number appeared together. This is called the simultaneous association, the former the successive.

Frequency was obtained by having the same color and the same number appear two or three times in the series, whereas the normal was obtained by having the same color appear once with a different number. For example, violet appeared in one series three times followed by the number 61, and it appeared again followed by the number 26. The normal association for violet was determined by the number of times 26 was given when the color was shown. The effect of frequency was determined by the number of times 61 was mentioned. This method does not take account of generative inhibition, but since its effect would work against the recall of both numbers, it is quite possible that the ratio obtained between the normal association and the frequency

¹ Myers, "Textbook of Experimental Psychology," pages 173-175.

² Calkins, "Psy. Rev. Mon. Sup.," II: No. 2.

association represents approximately the correct figure. If anything, the figure is slightly too low.

Vividness was usually obtained by showing a three or one place number, after the color had appeared, or by decreasing the size of the numbers or, instead of having black on a white background, by using red figures.

Recency was obtained by considering the color which appeared in last place in relation to the same color appearing in the middle of the series with a different number. Primacy was obtained in the same way by considering the first color which appeared.

Out of 1300 series of all types, it was found that 26.1 per cent was remembered in the long series, those containing 10 or 12 pairs, and 35.2 per cent in the series containing 7 pairs of associations. In some cases the frequency associations were formed with three appearances, sometimes with two, of the same color and number.

If we disregard absolutely the half credits given when one number of the two was called up, as we have a perfect right to do in applying the results to advertising where complete recall is imperative, the following list of ratios is worked out :

Normal	. . . . .	1.00
Frequency (2)	. . . . .	1.54
Frequency (3)	. . . . .	2.05
Vividness	. . . . .	2.15
Recency	. . . . .	1.96
Primacy	. . . . .	1.35

Recency is evidently a stronger principle of connection than primacy. Both frequency and vividness are stronger than recency. But when we try to compare frequency and vividness, difficulties are encountered, for they are both so variable. Under the conditions of the experiment, vividness is slightly stronger than frequency when the pair of stimuli were repeated three

times. Had they been given four times, however, frequency would undoubtedly have been stronger. Under the conditions of the experiment, the stimuli could not have been strikingly vivid. Had they been more so, the effect of vividness would have been increased. That the degree of vividness is a determining factor is indicated by the following table, which shows the different results obtained for the different vivid stimuli which were used :

3 digits	3.60
2 small digits	1.74
2 digits, red	2.16
3 digits, red	2.27

In order to determine the relative effect of vividness and frequency, in connection with the memory of actual advertisements, the following experiment was devised.

The task we set ourselves was to determine the relative value of a full page advertisement appearing once, a half page appearing twice, a quarter page appearing four times, and an eighth page advertisement appearing eight times. This investigation is connected with the experiments on intensity, frequency, etc., because size is merely one form of intensity, so we are studying the relation of intensity and frequency of stimulation in forming associations.

Scott¹ was the first to attack experimentally the problem of the relative memory value of advertisements of different sizes. His material was composed of 100 pages of advertising matter, consisting of 43 full pages, 15 half pages, 36 quarter pages and 93 smaller sized advertisements. These advertisements were bound into the back of a current magazine and shown to 50 persons, 17 men and 33 women. Some of his subjects mentioned as many as 30 advertisements, while one man was unable

¹ Scott, W. D., "The Psychology of Advertising," pages 165-177.

to recall a single one that he had seen. They were tested for both recall and recognition memory. His results for miscellaneous advertisements follow. The figures in the table indicate the average number of times each advertisement was mentioned.

	FULL	HALF	QUARTER	SMALL
Recall	6.54	2.73	1.08	0.15
Recognition . . .	12.65	7.87	3.39	0.37

He concludes: "In all these cases it was found that the full page advertisement was more than twice as effective as a half page advertisement; a half page was more than twice as effective as a quarter page, and a quarter page was more effective than a quarter page of small advertisements."¹

One possible source of error in his experiment comes from the fact that many of his full page advertisements, such as Ivory Soap, must have been very familiar to his subjects before they began the experiment. The familiarity undoubtedly raised the average of the full page advertisements. Indeed, the full page advertisements are undoubtedly somewhat more familiar to the average reader than are the other sizes.

Münsterberg,² using advertisements the size of those contained in the *Saturday Evening Post*, performed a variation of Scott's experiment. Six full page advertisements appeared once, 12 half page advertisements were shown twice, the quarter pages four times, the eighth pages eight times, and the twelfth pages twelve times. These advertisements were mounted on 60 sheets of Bristol board and shown to 30 persons, 20 men and 10

¹ Scott, W. D., "The Psychology of Advertising," pages 172-173.

² Münsterberg, H., "Harvard Studies," III, pages 263-286.

women. Each page was looked at for exactly 20 seconds. If either the name of the article or the name of the firm was remembered, the advertisement received half credit; if both were remembered, it received full credit. The memory value was determined by dividing the average for each size by the number of individuals who performed the experiment.

The maximum number of advertisements recalled by any one person was 46; the minimum, 18. The average memory value per advertisement was .44. The different sizes, however, had different memory values, which are given below.

Full page	.33
Half page	.30
Quarter page	.49
Eighth page	.44
Twelfth page	.47

Certain sex differences appeared, though only the following ones are noted by Münsterberg. For the quarter page, the masculine value was .51; the feminine, .45; while for the eighth page the men obtained an average of .37; the women, of .53. This would indicate that men have better memories for the quarter page and the women for the eighth page advertisements.

Strong¹ used 288 advertisements which were arranged to meet the following situations:

12 firms using full pages and advertising 4 times.
 12 firms using full pages and advertising 2 times.
 24 firms using full pages and advertising 1 time.

12 firms using half pages and advertising 4 times.
 12 firms using half pages and advertising 2 times.
 24 firms using half pages and advertising 1 time.

12 firms using fourth pages and advertising 4 times.
 12 firms using fourth pages and advertising 2 times.
 24 firms using fourth pages and advertising 1 time.

¹ Strong, E. K., "Psy. Rev.," Vol. XXI, pages 136-152.

Twenty-one subjects were shown the sheets containing these advertisements at a uniform rate of one sheet per second, while another 18 looked them through at their leisure.

"The four sets of advertisements were shown to the subjects a month apart. One month later they were tested as to their remembrance of what had been shown them. In this test the last advertisement they had seen was shown them from each firm together with an equal number of wrong advertisements. They were instructed to pick out all the advertisements which they had seen previously in the test. If they were sure any advertisement had been seen before, they were instructed to pick it out. Moreover, if they were not sure that the advertisement before them was the one they had seen, but were sure that it was the same *firm*, that was sufficient."¹

He found that those who looked the pages over at their leisure spent three and a half times as long on the advertisements as those who looked at each page for one second and that the former remembered three times as much as the latter. His general results and conclusions he sums up briefly and ably in the following paragraph.

"It is very evident, then, that for the same total amount of space used during four months one obtains a greater permanency of impression by using in the same magazine large space and less often than by using small space and more frequently. It is very easy to see that this must be the case in this particular situation, for permanency of impression increases approximately as the square root of the space used, but only as the cube root of the number of presentations. Hence, to repeat, the same amount of space used in large advertisements seldom repeated must be more effective for permanent

¹ Strong, E. K., "Psy. Rev.," Vol. XXI, page 138.

impression than when used in small advertisements more frequently repeated.”¹

While the results of this experiment do not bear directly upon our particular problem, there is an indirect reference. If we go through his tables and obtain the average memory value of the four times repeated quarter page, the twice repeated half page, and the full page shown once, and reduce these to ratios, we obtain the following :

Quarter page shown 4 times has a ratio of 1.00

Half page shown 2 times has a ratio of 1.06

Full page shown 1 time has a ratio of 1.32.

The object of our experiment was to discover the memory relationship existing between a full page advertisement appearing once, a half page advertisement appearing twice, a quarter page advertisement appearing four times, and an eighth page advertisement appearing eight times. By this method, each advertisement occupied eventually the same amount of space. The small advertisements were, however, repeated increasingly more times the smaller they became, so that they appeared 1, 2, 4, and 8 times. Put in other words, the repetitions increased in geometrical progression. But as the number of repetitions increased in this manner, the area decreased in a geometrical progression. This means that we compared the influence of two factors, size and frequency of stimulation, in forming associations. Strong's results, mentioned above, show that size is the more important factor.

Strong's results indicate, in the second place, that, to obtain the maximum effect, the space should not be divided. Divided repetitions of the space are less effective than the simultaneous presentation of the total space at one time. On both counts, these conclusions may be indicted by the traditional psychology.

¹ Strong, E. K., "Psy. Rev.," Vol. XXI, page 148.

The material used in the experiment was taken from the October, 1913, number of the *Cosmopolitan Magazine*. Several advertisements were cut from the advertising section and a total of 24 selected, 6 full pages, 6 half pages, and the same number of quarter and eighth pages. Care was taken to eliminate those advertisements which were of great familiarity. The necessary duplications were secured from 7 other copies of the same magazine. In all there were: — one copy of each of the six full page advertisements, two copies of each of the half page advertisements, four of each of the quarter pages and eight of each of the eighth pages.

These advertisements were neatly mounted on the pages of a portion of the advertising section of one of the magazines in such a manner that no two appeared on any one page. These pages, 24 in all, were inserted in the back of a magazine from which all other advertising matter had been removed. When completed, the dummy resembled an ordinary magazine in all respects.

Each subject was handed the dummy and asked to look over the advertising section for 5 minutes. When the allotted time had expired, he was asked to write down all the advertisements he remembered and everything in them that he recalled. These were the only directions given.

Records were received from 200 subjects, 100 men and 100 women, students in the course in Introductory Psychology at the University of Michigan. In the experiments performed during the first semester, 50 men and 75 women were used. During the second semester, the experiment was repeated with a different dummy made up in exactly the same way as the one already described, and results obtained from 50 men and 25 women.

The records obtained were carefully gone over and each reply on the papers graded, the following points

being considered: (1) the article, (2) pictures, (3) catch phrases, headlines, and descriptive matter, (4) name and location of firm, (5) size of advertisement or number of repetitions.

Throughout the entire experiment we endeavored to duplicate as far as possible actual advertising conditions. Instead of pasting the advertisements on flat surfaces, we put them in an actual magazine where the curving of the leaves might hide parts of some of the advertisements. Instead of allowing a certain fixed time for the perusal of each page, we allotted a certain time for going through the whole advertising section, allowing the subject to distribute the time as he wished. To judge from Strong's results, this method of procedure would give a lower relative value to the effect of repetition than allowing a certain fixed time per page. Strong's results show that if the sheets are shown at a rate of one per second, the ratio of the average for one appearance of an advertisement is 1.00, for two repetitions is 1.31, and for four repetitions, 1.71. When the subjects looked at the sheets at their leisure, the following ratios were obtained. One appearance, 1.00; two repetitions, 1.19; four repetitions, 1.53.¹ When we are looking at the sheets at our leisure, the natural tendency is to pay less attention to those things which are familiar and concentrate more upon the unfamiliar. Furthermore, in our effort to imitate advertising conditions, we used recall memory rather than recognition memory.

The results received from the subjects were carefully graded and worked out in various ways. In the first place, the average memory value of each advertisement was obtained by dividing the total number of credits it received by the highest total number of credits that it could possibly have received — the number of subjects multiplied by 5, since each advertisement was graded

¹ Strong, E. K., "Psy. Rev.," Vol. XXI, page 146.

on 5 points. This gave the "group" memory for each advertisement. The results for the different page divisions were then obtained by adding the averages for each kind and dividing by 12, the number of advertisements of that size.

Because of the high average deviations obtained by this method, it was decided to work the results through by the Order of Merit method. Since both methods gave almost identical results, it will be necessary to discuss but one.

In the table below are given the average results obtained for the different page divisions by the men, the women, and both the men and the women. The results are given in percentages. The men, for example, remembered practically $\frac{1}{5}$ of what was to be remembered about the full-page advertisements; the women remembered slightly less. Av. = average; A.D. = average deviation.

TABLE SHOWING "GROUP" MEMORY

	MEN		WOMEN		BOTH	
	Av.	A.D.	Av.	A.D.	Av.	A.D.
Full page . .	21.6	0.89	19.8	0.98	20.7	0.94
Half page . .	18.2	0.59	18.3	0.80	18.4	0.69
Quarter page	17.7	0.58	17.4	0.69	17.6	0.64
Eighth page .	23.0	0.53	23.9	0.63	23.5	0.58
Average .	20.1	0.65	19.9	0.78	20.0	0.71

These results show that the eight times repeated eighth page has somewhat the highest memory value for both sexes. The full page shown once is next, the half page repeated twice is third, and the quarter page repeated four times is the worst arrangement for both sexes as far as memory value is concerned.

The men have somewhat better memories for the full page advertisements than have the women; the women, on the other hand, show better memories for the eight times repeated eighth page advertisements. This probably means that the men are more influenced by magnitude, whereas the women are more affected by repetition.

Another peculiar phenomenon indicated by the table is that, up to a certain limit, size is a greater factor in memory than frequency of repetition. Past this limit, however, frequency becomes the more important consideration. This will be more plainly seen if the table given above is transformed into a table of ratios. The results for the full page are taken as the standard and the others reduced to ratios of it:

	MEN	WOMEN	BOTH
Full page	100	100	100
Half page	84	94	89
Quarter page	82	88	85
Eighth page	107	121	114

This table indicates that at least more than 4 repetitions are necessary to compensate for size. Somewhere between 4 and 8, the number of repetitions becomes the more important factor, until, when 8 repetitions have been made, the memory value rises considerably above that brought about by size alone. It would seem that below 5 repetitions, at least, size is a more important factor than frequency. It must be kept in mind, however, that these repetitions all occurred within a very few minutes. Had they been separated by longer intervals, quite different results might have been obtained.

The second method of working out the results was

almost the exact opposite of that already discussed. It consisted of finding out the total number of persons who remembered anything at all about the different advertisements and from this data obtaining the total number of times each size was mentioned. This way of recording the results makes the barest mention of an advertisement equal to a very complete description of it. The table showing the total number of times each size of advertisement was mentioned follows :

	MEN	WOMEN	BOTH
Full page	242	242	484
Half page	236	248	484
Quarter page	238	239	477
Eighth page	302	325	627

This way of working out the results indicates that for the men the eighth page is best, the full page next, the quarter page is third, and the half last. For the women, the eighth is best, the half, next, the full page is third, and the quarter is the poorest of all. The combined results show the eighth page to be the best, the full and half tied for second place, and the quarter page last. These results are strikingly like those obtained in part I of the experiment.

Several other points should be mentioned. With both the men and the women, the results for the full, half, and quarter pages are very much alike, the maximum difference being 9. These differences are so slight that they mean practically nothing. The eight times repeated eighth page, however, rises head and shoulders above any of the other sizes as far as memory value is concerned.

Again we find that the men are relatively more affected by sheer size, whereas the women are more in-

fluenced both absolutely and relatively by frequency of repetition.

If we consider the results in still another way, namely, by finding the average memory value per person for the different sizes of advertisements, we shall obtain some additional data. Since relatively few persons recalled the greater number of the advertisements, the "group" memory is not an indication of the strength of the impression made by each advertisement upon each individual. If we divide the total credits received by each advertisement by the number of persons who remembered that advertisement, we obtain the "individual" memory for each advertisement. Averaging these results as was done before, we obtain the following table:

	MEN		WOMEN		BOTH	
	Av.	A.D.	Av.	A.D.	Av.	A.D.
Full page . .	50.1	4.17	48.8	5.35	49.5	4.76
Half page . .	47.6	5.40	44.2	3.70	45.9	4.55
Quarter page	42.9	4.25	45.2	3.60	44.1	3.93
Eighth page .	43.9	2.14	46.8	3.00	45.4	2.57
Average . .	46.1	3.99	46.2	3.91	46.2	3.95

This table indicates that the full page advertisement shown once has the highest "individual" memory value. The two sexes are unanimous to that extent; from there on, they differ somewhat. In general, however, the half page is next, the eighth page is third, and the quarter page is last. This table indicates, as do the previous ones, that the men are more influenced by size than are the women, while the women are more influenced by repetition than are the men.

Since the first and third ways of considering the results

bring out somewhat different conclusions, it will be interesting to see if we can combine them to give an average value to the two tendencies which are obviously at work. Since it is impossible to determine the actual relative strength of the two tendencies, we shall, for purposes of comparison, consider them equal. The arithmetic mean is, then, as good a method of combination as any. In order to obtain this, we reduce the table giving the "group" memory and the one giving the "individual" memory to ratios and average them. This gives the following results:

	MEN	WOMEN	BOTH
Full page	104	94	99
Half page	94	86	90
Quarter page	88	85	86
Eighth page	100	100	100

This table means that in the long run it is a matter of practical indifference whether the eight times repeated eighth page or the full page shown once is used. Either is better than the half page repeated twice or the quarter page repeated four times. In both types of memory, the quarter page is the worst size of all. The moral is, therefore, to use it sparingly.

If the advertiser wishes to influence the men, the full page is probably the best means to employ. If he wishes to persuade the women, the eight times repeated eighth page is probably best. If he wishes to affect many persons to a slight degree, the eighth page is best, but should he desire to influence a fewer number of persons somewhat more strongly, the full page is his best means of doing so.

We turn now to an entirely different discussion of the results and shall consider the question of what

part of the advertisement is the best remembered. It will be recalled that, psychologically, the aim of advertising is to form a strong associative bond between a need and the trade name. The results were, therefore, tabulated to show how many times the following things were mentioned in each advertisement: picture, name of company, catch phrase, headline, etc., name and description of article. The results were, as usual, averaged for the different sizes of advertisements used. Since the different sizes had different memory values, the actual figures are reduced to percentages in the tables, for it is primarily the relative values of these things in which we are interested. The tables follow:

MEN

	Picture	Company	Phrase	Article
Full page	33.6	7.2	17.2	42.0
Half page	37.0	10.0	13.8	39.2
Quarter page	40.4	6.2	15.9	37.5
Eighth page	32.8	9.4	23.8	34.0
Average	35.6	8.3	18.0	38.1

WOMEN

	Picture	Company	Phrase	Article
Full page	37.4	6.6	14.3	41.7
Half page	43.6	4.3	13.6	38.8
Quarter page	44.0	5.2	12.4	38.4
Eighth page	34.7	9.7	25.6	30.2
Average	39.6	6.5	16.4	37.3

MEN AND WOMEN

	Picture	Company	Phrase	Article
Full page	35.5	6.9	15.7	41.8
Half page	40.3	7.1	13.7	38.9
Quarter page	42.3	5.7	14.1	38.0
Eighth page	33.8	9.5	24.7	32.1
Average	37.9	7.3	17.1	37.7

These tables show that the men are more likely to remember the advertised article than anything else in the advertisement; the women, on the other hand, are slightly more likely to recall the pictures. Considering the results of both men and women, the pictures are very slightly more likely to be recalled than the name of the article.

Since, psychologically considered, the aim of advertising is to form a connection between a need and the name of an article, that size which is most likely to lead to the recall of the article will be the best size to employ. This is clearly found for both sexes in the full page advertisements. There is a steady decrease in the memory value of the article with decrease in the size of the space used. The effect of repetition, as was found with the eight times repeated eighth page, was to emphasize such things as the name of the company and more particularly to bring to mind with greater vividness the catch phrases and headlines which ordinarily do not mention the name of the advertised article at all.

SUMMARY

1. Any method of scoring the results shows that the eight times repeated eighth page has the highest "group" memory value, together with a relatively low mean variation. With "individual" memory, it ranks third. The use of frequent, small advertisements tends to emphasize the relatively more unimportant parts of the advertisement, such as catch phrases and firm name.

2. The quarter page has, in general, the lowest memory value, together with the lowest mean variation. Pictures are more likely to be remembered with this size of advertisement than is the name of the article. In fact, this size has the highest memory value for pictures.

3. The half page advertisement is in third place with the "group" memory, is in second position with "individual" memory, and is in second place also as regards both the memory for pictures and article.

4. The full page advertisement is second in "group" memory and first in "individual" memory. Its use is also more likely to bring about the recall of the advertised article than any other size. It is, therefore, a good size. We feel justified in saying that, everything considered, as far as memory values are concerned, it is the best of all of the sizes used in this experiment.

The size of the advertisement to be used depends upon the motive of the advertiser. Since the main choice evidently lies between the eight times repeated eighth page and the full page shown once, we shall consider those possibilities only. It is plainly apparent that a fairly large part of the advertising which is done must rely for its adequacy upon memory. There is a relatively small amount of advertising appearing in the magazines which demands an instant response, or where an instant response is possible. The usual endeavor is to make so strong and favorable an impression upon the reader that when he gets to a store to purchase a certain kind of commodity, he will ask for that particular kind which he saw advertised and ask for it by name. It seems fairly obvious that the full page advertisement is the best to bring about this condition. It has a high "group" and "individual" memory, and leads to a greater likelihood of recalling the product than any other kind.

A test which brings out somewhat the same point concerning the relative memorability of different features of advertisements was conducted by Cheney on 117 of his employees. The following questions were asked and the replies tabulated in the usual way.

"What are the products manufactured by the firms using the following names? Hamilton, Oneida Community, Welch, Peters, Lydia Pinkham, Gillette, Ford, Williams, Mellen, Waterman, Pears, Iver Johnson, Tiffany, Heinz, Hart, Schaffner & Marx, Beecham, Chalmers, Colgate, Campbell, Pabst, Steinway, Kellogg, Fairbanks, Skinner, National Biscuit Co., Kleinert."¹

NAME	MEN	WOMEN	TOTAL
Ford	98.9	100.0	99.0
Williams	96.7	100.0	97.4
Waterman	97.8	100.0	98.3
Hamilton	70.0	77.8	71.8
Oneida Community	50.0	59.2	52.6
Beecham	85.5	66.7	81.2
Campbell	90.0	81.5	88.0
Kellogg	76.7	77.8	76.9
Gillette	97.8	77.8	93.2
Kleinert	27.8	55.6	32.4
Peter	80.0	92.6	82.9
Skinner	78.9	66.7	76.1
Pabst	90.0	85.2	88.8
Fairbanks (scales)	65.5	62.9	64.9
Fairbanks (soap)	30.0	33.3	30.8
Colgate	93.3	96.4	94.9
Chalmers	84.4	77.8	82.9
Iver Johnson	87.8	85.2	87.2
H. S. & Marx	85.6	66.7	81.2
Heinz	94.5	96.3	94.9
Welch	82.2	81.5	82.5 ²
Steinway	97.8	92.6	96.5
Tiffany	95.6	88.9	94.0
Pears	94.5	100.0	95.7
Na. Bis. Co.	91.1	88.9	90.6
Mellen	81.1	96.3	84.6
Lydia Pinkham	91.1	74.1	78.6
Average	82.0	80.8	81.5

¹ *Printer's Ink*, August 20, 1914, pages 61-62.

² In these tables, the author is not responsible for the averages.

2. What are the following products?

	MEN	WOMEN	BOTH
Bon Ami	90.0	96.3	91.5
Beaver Bd.	47.8	48.1	47.9
Aeolian	62.2	70.4	64.1
Big Ben	71.1	70.4	70.1
Velvet	85.6	85.2	86.3 ²
B. V. D.	74.4	55.6	70.1
Nabisco	38.9	40.7	39.3
Kohinoor snaps	5.6	7.4	6.0
Kohinoor pencils	50.0	51.8	50.4
Pompeian	85.6	92.6	87.2
Prince Albert	88.9	77.8	86.3
Uneda Biscuit	91.1	100.0	93.2
Zu Zu	46.7	44.5	46.2
Keen Kutter	88.9	88.9	88.9
Alco	71.1	62.9	70.9
Average	66.5	66.2	66.6 ²

2 A. Who makes them?

	MEN	WOMEN	BOTH
Bon Ami	68.9	51.8	56.4
Beaver Board	11.1	—	8.5
Aeolian	26.7	29.6	27.3
Velvet	22.2	25.9	23.1
Big Ben	5.6	—	4.3
B. V. D.	7.8	—	5.9
Nabisco	77.8	55.6	72.6
Kohinoor snaps	1.1	—	.9
Kohinoor pencils	15.5	22.2	17.1
Pompeian	15.5	25.9	17.9
Prince Albert	14.4	7.4	12.8
Uneda Biscuit	73.3	55.6	69.2
Zu Zu	57.8	48.1	55.6
Keen Kutter	20.0	18.5	19.6
Alco	34.4	33.3	34.2
Average	30.1	24.9	28.4

¹ *Printer's Ink*, August 20, 1914, pages 61-62.

3. What are the trade marks used by?

	MEN	WOMEN	BOTH
Swift & Co.	32.2	33.3	32.4
Beaver Board	16.6	18.5	17.1
Am. Telephone & Teleg. Co. .	40.0	37.0	39.3
Fairy Soap	44.4	66.7	49.6
Ford	4.4	3.7	4.3
Skinner's Satin	31.1	29.6	30.8
Nat. Lead Co.	28.9	14.8	25.6
Cream of Wheat	54.4	55.6	54.7
Na. Bis. Co.	18.9	18.5	18.8
Old Dutch Cleanser	73.3	77.8	74.4
Heinz	70.0	59.2	67.5
Average	37.7	37.7	37.7

4. Who says?

	MEN	WOMEN	BOTH
You dirty boy	32.2	33.3	32.3
There's a reason — Postum . .	44.4	44.5	44.4
There's a reason — Grape Nuts .	20.0	29.6	22.2
It floats	68.9	77.8	70.9
Good Bye			
Old hook and eye	8.9	18.5	11.1
Ask the man who owns one . . .	31.1	29.6	30.8
Chases dirt	66.7	74.1	68.4
One of the 57	66.7	70.4	68.4
99 ⁴⁴ / ₁₀₀ per cent pure	41.1	51.8	43.6
Hammer the hammer	43.3	40.7	42.7
It hasn't scratched yet	66.7	70.4	67.5
Average	43.7	49.5	45.1

This table is particularly interesting in that it indicated the effect of advertising on the minds of mature men and women who are the actual purchasers of advertised goods; upon the minds of individuals who are wage earners. It shows that people of the class

experimented upon can tell with considerable accuracy the product which is made by a given man. That is, they have a considerable knowledge of the industrial information of the country, probably derived from advertisements. In fewer instances can they tell what the product is, thereby showing little personal acquaintance with it. The slogan is recalled more frequently than the trade mark, possibly because it is something which can be repeated. But slightly over a quarter of them can tell who makes the commodity. This is especially noteworthy considering that the greatest memory value was for the name of the commodity which was manufactured by certain persons. To be sure, different firms were ordinarily suggested, and probably the second list was more difficult than the first.

As a by-product of another experiment, which will be described more in detail at a later time, information was obtained concerning the relative importance of primacy and recency as connected with advertisements. The experiment consisted in giving a considerable number of persons copies of some standard magazine, and telling them to look it over. Sometimes they were told that they would be tested for their memory of the advertisements, sometimes they were not, but at any rate, they were requested at a subsequent time to record the advertisements which they remembered. The test, as performed in three different universities upon a total of about 600 subjects, may be taken as showing with considerable accuracy the memory tendencies of college students, especially since the results of the three separate experiments show a very considerable amount of agreement. If the beginning of the front advertising section and the beginning of the back section are taken to represent primacy, the ends of the two sections to represent recency, and the middle of the two advertising sections to represent a basis of comparison, the following results,

averages of the three experiments, are obtained. The results are given in ratios, that position having the highest memory value in each experiment having been given a value of 1.00, and the results of the three experiments averaged.

Middle of the sections . . . . .	.32
Beginning of each section . . . . .	.87
End of each section . . . . .	.43

This table indicates that primacy is a stronger factor than recency. Another bit of substantiating evidence is found in the fact that in two of the three experiments, the front advertising section had a higher memory value than the back.

The third set of laws for determining the direction of the association are those which were encountered in the discussion of attention. They are operative in this connection for exactly the same reasons that they were in the previous connection, so need no further discussion at this time.

Another point of some interest to the advertising man is to be found in connection with backward and forward associations. If A and B enter consciousness in immediate succession, we saw that when A reappeared, B would be called up, too. Does the reverse hold true? If B should appear, would it call up A? That the forward association is much stronger than the backward one is readily demonstrated by saying the alphabet forward and then trying to say it backwards. While the latter can be done by the great majority of people, it takes them much longer than the former. An experiment quoted by Myers¹ shows that the forward association is practically three times as strong as the backward association.

Since one of the main objects of advertising, con-

¹ Myers, "Textbook of Experimental Psychology," page 166.

sidered from the psychological standpoint, is the formation of an association between a need and a way of satisfying that need, usually the name of a commodity, it is quite important that this law be observed. Other things being equal, the need should be stated first, the remedy for the need should be stated afterwards. Under these conditions, the likelihood of the commodity's occurring to a possible purchaser is at least doubled and possibly trebled.

Another application of the same law is to be found in the name of the commodity itself. Usually the exigencies of the case demand that the particular name shall come first to be followed by the general class of commodity to which it belongs. We are quite accustomed to seeing Ivory Soap, Campbell's Soups, Marlin shotguns, etc., etc.; seldom Soap Ivory, Gun Marlin, and so on, for such an arrangement would necessarily be awkward. It seems possible, however, that some form of expression which would put the general class first and the particular name second would establish a firmer association. To be sure, soap and guns are not the needs, they are the way of satisfying the needs. In the case of soap, the need is cleanliness. Just plain water is not a satisfactory way of satisfying the need, as most individuals have found, so the idea of soap arises. Following the idea of soap should logically come the particular kind of soap. But man is very prone to form verbal habits. He dislikes to think in general terms where he can escape it. Consequently, instead of using the mere word soap, he is very likely to run the two words, Ivory Soap, together as if they were hyphenated, so that the need for cleanliness suggests not soap in general, but Ivory Soap. The advertiser who can produce this hyphenated impression in connection with his wares is very fortunate, for it is a sign that his commodity is very well known. If his commodity is not so re-

nowned, the quickest way for him to make it so is to use the forward association rather than that of the reverse sort.

In an experiment performed at the University of Michigan, a list of 100 words was prepared, one third of them being general, class names, such as guns, gloves, breakfast foods, coffee, etc. The rest of the list was made up of particular advertised commodities, such as Paris, Hansons, etc. The list was read to a number of subjects, the first association which occurred to each in response to the stimulus word was recorded, and the time taken between the giving of the stimulus word and the response. The results show that the forward association took 1.90 seconds; the backward association, 2.36 seconds. Other experiments have shown that the reaction time is a very accurate measure of the relative strength of associations.

This experiment also shows the relative strength of the different associations which have been connected with any one class of objects. It is in reality a measurement of the advertisements which have been most effective with any given individual.

A sample page showing the list of words and the response given to them is inserted.

STIMULUS	RESPONSE	STIMULUS	RESPONSE
Williams	Shaving	Breakfast Food	Kelloggs
Beechnut	Gum	Soap	Pears
Kelloggs	Flakes	Flour	Crosby
Campbells	Soup	Watches	Waltham
Crisco	Lard	Fountain Pens	Waterman
Nabisco	Wafers	Chewing Gum	Spearmint
Velvet	Tobacco	Guns	Iver Johnson
Kodak	Eastman	Soups	Campbell
Arrow	Collars	Tobacco	P. A.
Horlicks	Milk	Milk	Borden
Mennens	Powder	Collars	Corliss Kuhn

STIMULUS	RESPONSE	STIMULUS	RESPONSE
Never leak	Tires	Socks	Holeproof
Winchester	Guns	Camera	Eastman
(Z) Riz La		Rubbers	Neverslip
Community	Razors	Durham	
Delco	Starters	Toothbrushes	Pro-phy-lactic
Waltham	Watch	Speedometers	Stewart
Savage	Gun	Toilet Powders	Colgates
Welch	Grape Juice	Coffee	White House
Gillette	Razor	Cleanser	Dutch
Everstick	Rubbers	Garters	Boston
Edison	Lights	Education	Univ. of Chicago
Carnation	Milk	Pianos	Grinnell
Colt	Gun	Stoves	Detroit
Remington	Gun	Paints	Acme
Pro-phy-lactic	Brush	Magazines	Cosmopolitan
Ranson	Gloves	Books	Business
Lowneys	Chocolates	Self starters	Delco
Iron-Clad	Sox	Schools	Wharton
Fisk	Tires	Cleaners	Dutch
Columbia	Battery	Hats	Knox
Ivory	Soap	Clothes	Kirschbaum
Timkin	Bearing	Shoes	Regal
Three in one	Oil	Ties	Cheney
Shin-o-la	Polish	Shirts	Arrow
Warner	Speed	Underwear	Wilson Bros.
Ingersoll	Watch	Gloves	Fownes
Holeproof	Hosiery	Tires	Fisk
Thermos	Bottles	Canoes	Kennebec
Daisy		Grape Juice	Red Wing
Hinds	Almond Cream		
Bon Ami			
Swift	Bacon		

The table, showing the average times taken by the subjects, together with the average deviation of the subjects, is given. It is seen that the average time for all the subjects for the forward association is considerably shorter than the average time for the backward association, and that the average variation for the forward association is considerably less than the corresponding figure for the backward association.

FORWARD ASSOCIATION	M.V.	BACKWARD ASSOCIATION	M.V.
1.90	.68	2.36	.95

The next series of tables shows the distribution of the associations, particularly of the backward variety. These show the word which occurred first to the subject when the stimulus word was mentioned. The relatively slow reaction times exist because we have here a choice reaction, the subject being requested to answer in terms of some advertised commodity.

STIMULUS	RESPONSE	#		
Breakfast Food	Kellogg's	38		
	Q. Oats	6		
	C. of Wheat	4		
	Grape Nuts	3		
	Sh. Wheat	3		
	R. Oats	1		
	Force	1		
	Nat. Oats	1		
	Wh. Bus.	1		
		1		
Camera	Eastman	40		
	Kodak	14		
	Brownie	2		
	Premo	1		
		2		
Canoes	Old Town	44		
	Peterboro	3		
	Kennebec	1		
	Indian	1		
	Mullen	1		
		9		
Chewing Gum	Spearmint	24		
	Wrigley	10		
	Beechnut	10		
	Beeman	10		
	Pepsin	4		
	Majoes	1		
		0		

STIMULUS	RESPONSE	#		
Cleaners	{ O. Dutch	23		
	Bon Ami	8		
	Sapolio	6		
	Vacuum	4		
	Goldman	2		
	Babbitt	1		
	Saniflush	1		
	Hat	1		
	Frantz	1		
	Barkeeper's Friend	1		
	Eureka	1		
	Electric	1		
	E. Z.	1		
	_____	8		
Cleansers	{ O. Dutch	56		
	Bon Ami	2		
	_____	1		
Clothes	{ H.S. & M.	17		
	A. S. Best	4		
	Society B.	4		
	Kuppenheimer	3		
	Bond St.	3		
	Steinblach	3		
	Royal	3		
	Kirschbaum	2		
	Price	2		
	Barchfield	1		
	Capper	1		
	Brooks	1		
	Greenroom	1		
	Hamburg	1		
	Campus Br.	1		
	Hickey	1		
	Cloth Croft	1		
	Winton	1		
	Princess	1		
	National	1		
	Fields	1		
	Wooltex	1		
	Macks	1		
	King	1		
	_____	3		

STIMULUS	RESPONSE	#		
Coffee	{ White House	12		
	Chase & S.	7		
	Moca & J.	4		
	Arbuckle	4		
	Kar-avan	3		
	Bours	2		
	O. Reliable	2		
	Lion	2		
	4 X	1		
	Berry & H.	1		
	Postum	1		
	Ceylon	1		
	Coletavern	1		
	O. Mansion	1		
	South Bl.	1		
	Bancroft	1		
	Burley	1		
	Vienna	1		
	Manor H.	1		
	San Marto	1		
	Englehard	1		
	Barrington	1		
	Nero	1		
	M. Wash.	1		
	Club House	1		
	Raleigh	1		
Collars		5		
	{ Arrow	53		
	Cluett	2		
	Corliss K.	1		
	Tuxedo	1		
	Red Man	1		
	Lion	1		
Arrow		0		
	{ Collars	46		
	Shirts	6		
	Pierce	2		
	Plane	2		
	Spearmint	1		
	Root	1		
Flour		0		
	{ G. Medal	20		
	Pillsbury	13		
	Washb.	10		

STIMULUS	RESPONSE	#		
Flour — <i>continued</i> . . .	{ Henkel	2		
	{ Occid.	2		
	{ Crys. Lily	1		
	{ Mittellberg	1		
	{ Lee & Chatfield	1		
	{ Kimball	1		
	{ K. Arthur	1		
	{ Rol. K.	1		
	{ Ev. Valley	1		
	{ Univ.	1		
	{ —————	3		
Fountain Pens	{ Waterman	34		
	{ Conklin	14		
	{ Parker	6		
	{ Swan	2		
	{ McLaughl.	2		
	{ Eastman	1		
	{ —————	0		
Garters	{ Paris	29		
	{ Boston	22		
	{ Vel. Pad	1		
	{ —————	7		
Gloves	{ Fownes	18		
	{ Dents	8		
	{ Hanson	5		
	{ Keyser	4		
	{ Adler	3		
	{ Perrin	2		
	{ W. & S.	1		
	{ Reach	1		
	{ Knox	1		
	{ Niag. Maid	1		
	{ Edith	1		
	{ —————	14		
Grape Juice	{ Welch	49		
	{ Armours	3		
	{ Red Wing	2		
	{ Paupan	2		
	{ Smith	1		
	{ —————	2		

STIMULUS	RESPONSE	#		
Guns	Winchester	19		
	Remington	13		
	Savage	5		
	Colt	4		
	Iver Johns.	3		
	Parker	3		
	Marlin	2		
	S. & W.	2		
	Daisy	2		
	Fox	1		
	Stevens	1		
		4		
	Stetson	21		
	Knox	16		
Hats	Mallory	8		
	Gage	3		
	Brothers	1		
	Yale	1		
	Barnes	1		
	A. S. Best	1		
	Factory	1		
	Fisk	1		
	Panama	1		
	Phipps	1		
		3		
	Carnation	22		
Milk	Horlick	14		
	Borden	9		
	Condensed	3		
	Pet	2		
	Evap.	1		
	Arros	1		
	Eagle Br.	1		
	Butter	1		
		5		
	Milk	31		
Carnation	Talc	4		
	Auto	3		
	Cream	2		
	Flower	2		
	Flour	1		
	Choc.	1		
	Soup	14		
		0		

STIMULUS	RESPONSE	#		
Paints	{ S. & Will.	28		
	Acme	3		
	Wh. Lead	3		
	Dutch	3		
	Lowe Bros.	3		
	Boydell	3		
	Penn.	1		
	Deval	1		
	H. & M.	1		
	Ready Mixed	1		
	Sunburst	1		
	Whites	1		
	Buckeye	1		
	<hr/>	9		
Pianos	{ Steinway	20		
	Grinnell	8		
	Chickering	4		
	Weber	4		
	Kimball	4		
	Grand	3		
	Clark	2		
	Vose	2		
	Crown	1		
	Cable	1		
	Knabe	1		
	Packard	1		
	Vaughn	1		
	Ivers Pond	1		
	Hardman	1		
	A. A.	1		
	Baldwin	1		
	Williams	1		
Razors	{ Gillette	46		
	Auto Strop	3		
	Durham	3		
	Ever Ready	2		
	Wade & Butcher	1		
	Keen Kutter	1		
	Safety	1		
Gillette	<hr/>	2		
	{ Razor	58		
	Auto Strop	1		

STIMULUS	RESPONSE	#		
Rubbers	{ Everstick	19		
	Goodyear	5		
	Neverslip	5		
	Hub	2		
	Red Seal	2		
	{ Never leak	2		
	Hood	2		
	Sullivan	1		
	Everwear	1		
	Red Cross	1		
		19		
Everstick	{ Rubbers	24		
	Cement	4		
	Glue	4		
	Glasses	1		
	Patch	1		
	Tires	1		
		24		
Self Starters	{ Delco	24		
	Gray & Davis	8		
	Westinghouse	2		
	Stewart	1		
	{ Lynes & Hough	1		
	Tyck	1		
	Wagner	1		
		21		
Shirts	{ Arrow	33		
	Cluett	7		
	Manhattan	5		
	A. S. Best	2		
	Wms.	1		
	Davies	1		
	{ Kenzie	1		
	Mandel	1		
	Dorchester	1		
	Griffin	1		
	Gourley	1		
	Longfellow	1		
		4		
Shoes	{ Franks	18		
	Walkover	11		
	Bannister	3		

STIMULUS	RESPONSE	#		
Shoes — <i>continued</i> . . .	{ Florsheim	3		
	{ Nettleton	3		
	{ Sorosis	3		
	{ Regal	2		
	{ Hanson	2		
	{ Bostonian	2		
	{ Ralston	1		
	{ Wearwell	1		
	{ Fyfe	1		
	{ Wagner	1		
	{ M. Field	1		
	{ M. & M.	1		
	{ G. & M.	1		
	{ Bond St.	1		
	{ C. & Young	1		
Soap	{ Burt	1		
	{ Educator	1		
	{ Ivory	43		
	{ Pears	6		
	{ Fairy	3		
	{ Williams	1		
Ivory	{ Woodbury	1		
	{ Packers	1		
	{ Soap	57		
Socks	{ Balls	1		
	{ Hole-Proof	40		
	{ Everwear	6		
	{ Phoenix	3		
	{ Iron-Clad	2		
	{ Onyx	1		
Hole-Proof	{ Dry	1		
	{ Socks	6		
Iron-Clad	{ Socks	58		
	{ Gloves	1		
	{ B. Ship	33		
	{ Rubbers	3		
	{	21		

STIMULUS	RESPONSE	#		
Soup	{ Campbell	50		
	{ Van Camp	5		
	{ Macaroni	1		
	{ Amberg	1		
	{ La France	1		
	{ Clam Chowder	1		
	—	0		
Speedometer	{ Warner	33		
	{ Stewart	10		
	{ Jones	2		
	{ Bales	1		
	—	13		
Stoves	{ Garland	12		
	{ Kalamazoo	9		
	{ Detroit	6		
	{ Jewel	3		
	{ Majestic	3		
	{ Old Range	2		
	{ Acorn	2		
	{ Bucks	1		
	{ Independent	1		
	{ Royal Oak	1		
	{ Mich.	1		
	{ Royal	1		
	{ Buckeye	1		
	{ Hart	1		
	{ Granger	1		
	{ Laurel	1		
	{ Ranger	1		
	{ Electric	1		
	{ Richmond	1		
	{ Ideal	1		
Ties	{ Gas Co.	1		
	{ Excelsior	1		
	—	7		
	{ Cheney	7		
	{ A. S. Best	4		
	{ Keyser	4		
	{ Bond St.	2		
	{ Windsor	2		
	{ W. & M.	2		
	{ Pickards	2		
	{ Duplex	1		

STIMULUS	RESPONSE			
Ties — <i>continued</i>	{ Kenzie	1		
	{ Shein	1		
	{ 4-m-h	1		
	{ Tinker	1		
	{ Wash. Shirt Co.	1		
	{ Bench	1		
	{ Capper	1		
	{ Cy. Watson	1		
	{ Arrow	1		
	{ Woolfolk	1		
	{ Wilson	1		
		24		
Tires	{ Fisk	16		
	{ Firestone	10		
	{ Goodyear	9		
	{ Goodrich	8		
	{ U.S.	5		
	{ Republic	2		
	{ Diamond	2		
	{ Kelly-Springfield	1		
	{ G. & J.	1		
	{ Dunlap	1		
	{ Hartford	1		
		3		
Tobacco	{ Velvet	20		
	{ B. D.	19		
	{ P. A.	10		
	{ L. Strike	2		
	{ Starr	1		
	{ Campbell	1		
	{ Tuxedo	1		
	{ Omars	1		
	{ Piper	1		
	{ Cube Cut	1		
	{ Camel	1		
	{ Edgeworth	1		
		0		
Toilet Powder	{ Mennen	25		
	{ Colgates	18		
	{ Williams	9		
	{ Talcum	2		
	{ Squibbs	1		
	{ Sanitol	1		
	{ Agurac	1		
		2		

STIMULUS	RESPONSE			
Toothbrushes	{ Prophylactic	46		
	{ Rubber Set	6		
	{ Sanitol	1		
	{ —————	6		
Prophylactic	{ Toothbrush	47		
	{ Tooth paste	7		
	{ Shaving brush	1		
	{ —————	4		
Underwear	{ B. V. D.	27		
	{ Porosknit	7		
	{ Munsing	4		
	{ Wilson Br.	2		
	{ Underwood	1		
	{ Clothes Craft	1		
	{ Stone fields	1		
	{ Cupper	1		
	{ World Star	1		
	{ Superior	1		
	{ Vassar	1		
	{ Cooper	1		
	{ Rocking chair	1		
	{ Linen mesh	1		
	{ Phoenix	1		
	{ —————	8		
Watches	{ Ingersol	29		
	{ Waltham	16		
	{ Elgin	9		
	{ Howard	3		
	{ Druid	1		
	{ Waterbury	1		
	{ —————	0		

One of the most striking results of the experiment is the fact that those commodities which are mentioned most frequently are, with few exceptions, the ones which are most widely advertised. A second point which is very striking is the number of times an advertised commodity was not thought of. A list will indicate the differences.

COMMODITY	NUMBER OF TIMES NOT MENTIONED	COMMODITY	NUMBER OF TIMES NOT MENTIONED
Gum	0	Shirts	4
Fountain pens . .	0	Soap	4
Collars	0	Coffee	5
Soups	0	Milk	5
Tobacco	0	Socks	6
Watches	0	Toothbrushes . .	6
Breakfast food . .	1	Garters	7
Cleansers	1	Stoves	7
Pianos	1	Cleaners	8
Shoes	1	Underwear	8
Cameras	2	Canoes	9
Grape juice	2	Paints	9
Razor	2	Speedometers . . .	13
Toilet powder . . .	2	Gloves	14
Clothes	3	Rubbers	19
Flour	3	Self starters . . .	21
Hats	3	Ties	24
Tires	3		
Guns	4		

The list shows the relative knowledge of a group of 59 university students concerning advertised commodities. The surprising thing is that such commonly worn articles as gloves, rubbers, and ties, should be so little known.

CHAPTER XI

FUSIONS

THE experiences which are obtained from objects in the outside world come grouped together, giving the awareness of things rather than of the qualities of things. The consciousness of the qualities, as was pointed out, is called sensation. To include the awareness of things, the term perception has been adopted. The awareness of a thing includes the simultaneous experiencing of numerous qualities. In addition to this, it includes also the arousal of certain memories. These two considerations will be taken up and studied in some detail, for they are of considerable importance to the advertising man.

The first thesis is that perception, or a knowledge of real things, is the result of a fusion of sensations. Any simple object, an apple, for example, may be experienced in a number of ways. It is possible to see it, to taste it, to smell it, feel it, and so on. If these experiences were absolutely separate and discrete, our knowledge of the apple would be very fragmentary. If there was no way of grouping the different experiences which come from the same object, if one could not stand for the other by being called up by association, it would be impossible to tell from the appearance of the apple that it was good to eat, that it had an agreeable taste. Such isolated bits of information would never give a knowledge of real objects. There would be no way of fusing the qualities together into a unified whole.

However, the brain of man is built in such a way that each sensory region is connected with every other sensory region. Consequently, any two which are active at the same time or in immediate succession tend to become associated, so that when one experience is present, the other tends to follow it. The different possible ways of experiencing the same object therefore tend to become associated or fused together, so that one type of experience will tend to arouse the other possible ways of experiencing the same thing.

It has been seen above that there are three groups of sensations, those received from inside the body, those coming from objects in contact with the body, and those coming from distant objects. Those which are received from objects at a distance are of particular and practical significance to the individual only as they may be brought into relation with the body. Their chief significance to the person in a practical way is in terms of the sensations which would result from contact with the object, from movements relative to the object, or from taking the object, wholly or partially, into the body. From this standpoint, it may be said that perception consists largely in the translation of experiences received by the distance senses into terms of the more intimate senses. The peculiar effects of light and shade, experienced in visual terms, are translated into sensations of contact and the like.

Advertising is very largely a visual affair. Either an actual picture or a description of the article, complete in itself or emphasizing one phase, is usually given. Sight is a distance sense, and in order to arouse much response or interest in the reader of the advertisement it is desirable that such distance sensations should be translated into terms of the contact and organic sensations. In the advertisement of a breakfast food, for example, a picture of the food is given, usually a dish of

the cereal covered with rich cream and often-times with fruit. Obviously, the mere appearance of the food will never sell the commodity. If, however, the picture arouses the taste sensations which may be awakened by eating the food, the olfactory sensations accompanying it, the pleasant organic sensations which arise make the appeal very much stronger, and much more likely to result in a sale of the commodity. Often-times, these necessary associations can be aroused by the insertion of a word in the copy suggesting the taste, the odor, or the healthful qualities of the food. Neatness and cleanliness of appearance are not to be despised. The reasons for this will, however, be taken up at a later time.

The second point, that perceptions always involve memory processes, has already been touched upon, but further details should be observed. An example which is frequently given to show the effects of memory is our perception of a table top. A table top is instantly regarded as being rectangular in shape; but this is a sheer interpretation, for the sensations themselves which are received from the table top are anything but rectangular. It is ordinarily seen in perspective, consequently there appear to be two acute angles and two obtuse angles. Likewise, the edges must appear to be curved, for the images cast upon the retina fall upon a curved surface and according to the laws of descriptive geometry can never be absolutely straight. Yet these deviations are disregarded completely by the observer and he immediately sees the top of the table as rectangular. The reason may be found in the following considerations. From one position certain angles appear to be acute, from another the same ones seem to be obtuse. The observer, to bring order out of this chaos, forms a sort of average between them and concludes that they are really right angles. This conclusion

is strengthened by the fact that the angles will fit into other angles which are seen sometimes as acute and sometimes as obtuse, but which actual measurement will show to be right angles.

Generalizing the conclusions arrived at by a long series of arguments like the one given above, it may be stated that every perception is the interpretation of the incoming stimuli in terms of our past experience. We have many different experiences with the similar objects and the objects belonging to the same general class which surround us. In process of time, we form a typical notion of such an object or of such a class of objects, so that any new experience of the same nature is immediately interpreted in terms of a typical idea. This may be called a typical act of perception. Certain of the applications of this general law of perception are obvious, certain of the others are somewhat more subtle.

1. In the first place, it may be stated that no advertisement, unless it be the very first one which is ever seen, is perceived in terms of itself alone, for it is always modified and interpreted in terms of itself plus the more or less typical notion of the advertisements of the same commodity which has been made by the effects of the previous insertions. As a result of the effect of the previous insertions of an advertisement of any given commodity, there develops in the minds of the readers a typical notion of the product. Each new advertisement which appears is received and modified by the typical notion, and in turn adds to and modifies the typical notion of the product which exists in the reader's mind.

It is largely for this reason that repeated advertisements have the effect that they do. This is especially true if the advertisements are varied from time to time, each new one calling attention to a different characteristic of the commodity, or to a new way of using the commodity, or to the satisfaction of another need by

the use of the commodity. For in this way a much more thorough and inclusive typical idea of the commodity is formed.

2. A second fact is that each advertisement is influenced by the other advertisements, kinds of reading matter, etc., which surround it, and which come to attention just preceding the reading of the advertisement. Not only does the total impression received from the page and the one opposite to it fuse into a total impression, but in the same way, the entire advertising section of the magazine gives rise to a typical idea of the advertisements which are included within it.

As an instance of this general rule, Scott found¹ that advertisements of the "next reading" variety were much more likely to receive notice and particularly to pull trade, if they appeared alongside of a story or article which was related to the context of the advertisement. This is an instance of the advantageous aspects of the law.

An experiment conducted at the University of Michigan on the effects of the surroundings upon the pleasingness of advertisements points in the same direction. In the experiment, various advertisements of Kellogg's Toasted Corn Flakes were arranged on a large page, surrounded by advertisements of other commodities.

The method of paired comparisons was used and a total of 99 persons experimented upon. Each advertisement was compared with every other, and each person was asked to make a preference judgment in each case where it was possible to do so. He was to consider in each case the Toasted Corn Flake advertisements but might be influenced by the surroundings amongst which it appeared.

The order of pleasingness, as determined by the experiment, is shown in the table which is given below.

¹ Scott, W. D., *Advertising and Selling*, January, 1916.

AD. NUMBER	RANK IN PLEASINGNESS	SURROUNDING ADVERTISEMENTS
9	1	Cream of Wheat Candy — Fluffy Ruffles Popcorn and peanut business Snider's Pork and Beans
1	2	Peters' Milk Chocolate Yale Locks Travelers Insurance Co.
8	3	American Optical Co.
2	4	Peters' Milk Chocolate Tiffany and Co. Eastman Kodak Co.
10	5	Bachelor's Friend Hosiery Onyx Hosiery Cat's Paw Rubber Heels
7	6	Crystal Domino Sugar Globe-Wernicke Co. Arts and Decoration Magazine
6	7	Baker Electrics Detroit Electric Pratt "50"
4	8	American Magazine Annette Kellermann A. B. A. Cheques
5	9	Baker Electrics Tire repair outfit Dixon's Motor Graphite The Franklin Automobile
3	10	Buster Brown Darnless Hosiery Karpen Furniture False Hair Remoh Gems Barker's Exercises White Valley Gems Lock-Stitch Awl Wheel Chairs Mushrooms

It will be seen that the most pleasing impression is produced by the advertisement of a breakfast food when it appears alongside of other food advertisements. On the average, it may be said that the affective value of the advertisement decreased as the surrounding space was given less and less to the advertisements of other foods. When no other foods appeared among the neighboring advertisements, the effectiveness of the Corn Flake advertisement decreased by slightly more than 12 per cent. The next most pleasing setting for the breakfast food advertisement was found when the other appeals were of a homogeneous nature. The lowest values were found when the surroundings were filled with an absolutely heterogeneous mass of small advertisements.

In explanation, it may be said that since the various elements which are attended to in immediate succession tend to become associated, the various advertisements which appear together likewise become connected. Consequently, if two pleasing advertisements appear on neighboring spaces, each will add to the pleasantness of the other. If one is pleasant and the other unpleasant, they will mutually detract each from the other. Even if both are pleasant, but contain somewhat different messages, the effect is likely to be detrimental to both.

3. In the third place, the advertisement is perceived not only in terms of the considerations already given, but is affected decidedly by the medium in which it occurs. A medium which guarantees its advertisements, especially if this fact is emphasized, is particularly valuable. For the guarantee reacts upon the advertisement, causing it to give an impression of worth and honesty which is particularly valuable. This notion, in process of time, tends to become associated with both the commodity and the firm which manufactures it.

In a similar manner, an advertisement is influenced by the character of the medium in which it appears. A magazine or periodical which stands for truth, accuracy, or moral tone is likely by association to give the same impression concerning the advertisements which appear in its pages. A magazine which is classed as cheap will tend likewise to cheapen and detract from the pulling power of the advertisements which it carries. Advertisements printed upon a poor quality of paper tend also to become associated with the grade of the paper.

4. Under the same general principle may be grouped the advertisements of rival commodities which occur near together. As a result of this the trade name, or slogan, or trade-mark is likely to become associated with the wrong commodity, thereby representing a waste of space. The results of an experiment bear this out. The experiment consisted in showing 50 persons 33 different trade-marks, slogans, etc., and asking them to give the commodity which always carried the slogan or trade-mark in its advertisements. Some of the peculiar responses were as follows:

1. Several subjects gave the answer "Little fat tailor" to the slogan, "Who's your tailor?" Others said, "Hart, Schaffner & Marx," and, "The Royal Tailors."

2. The well-known Cream of Wheat negro suggested cocoa, soup, baking powder, Postum, and Shredded Wheat.

3. "61" was associated with stove polish and whiskey.

4. "P. A." was a cigar.

5. "London Life" suggested insurance and a magazine.

6. "Rubberset" meant typewriters, rubber heels, and autos.

7. "Hasn't scratched yet" meant underwear and a fountain pen.

8. "99⁴⁴/₁₀₀ per cent pure" quite frequently meant alcohol or baking powder.

9. "1847" had a variety of answers, of which Duffy's pure malt whiskey, gin, and the date of the Dutch immigration to America are the most significant.

10. "2 in 1" was frequently mistaken for 3 in 1 Oil.

11. "Ætna" was a cigarette, a parlor car, a biscuit, and a non-skid chain.

Not only does the successful appeal of an advertisement depend upon the various situations in which the advertisement finds itself, the previous advertisements seen, and so on, but it also depends upon the fusion of the different parts of the advertisement itself. The great majority of advertisements are made up of both illustration and copy. The fusion of these two is an important element, for if they do not help each other in bearing the desired message, it will be found very difficult to form a correct typical idea of the commodity. The use of pictures and phrases not connected with the main message of the advertisement is therefore condemned from this standpoint. Such methods may have a high attention value, but so has a snake or a mosquito. Attention aroused in this way can have but a small fraction of the effectiveness that it might have if different devices had been used. The conclusion seems to be that the picture and the wording of the message should be in agreement, for this makes the perception of the advertisement an easier matter.

As was pointed out by Scott¹ a good many years ago, the kind of picture which is used in the advertisement is an important matter. A disagreeable picture is always a poor thing to use, for the unpleasantness aroused by the picture tends to become associated with the commodity itself. In connection with food advertisements, for example, Scott points out the inadvis-

¹ Scott, W. D., "The Psychology of Advertising," Chapter XIV.

ability of using pictures of animals. Most of us eat meat, but we dislike to have our attention called to the fact that the meat really does come from animals. The picture of the animal calls attention to this unpleasant fact. It is much better policy to insert a picture of some favorite cut of meat appearing upon a dish which is resting upon a table surrounded by a few charming and well-dressed persons. The constant use of the right kind of illustration has succeeded, by this very process of association and perception, in building up an atmosphere of elegance, refinement, romance, and poetry around a large number of very prosaic and commonplace articles of diet and the like.


In the great majority of cases, the use of pictures of animals in connection with food advertisements is to be severely criticized, for it generally leads to one or both of two impressions concerning the product; either that it is a glorified kind of animal food, a staple which the animals enjoy during the temporary absence of the humans, or the direct association is made between the food and the animal, so that whenever the food is mentioned the animal is thought of. Since most animals are dirty and very odorous in their natural state, such an association is, to say the least, unfortunate.

The reverse side of this proposition is to emphasize the cleanliness of the product, as has been done so successfully by the Crisco advertisements. Most persons dislike dirt, especially in connection with food. A meal eaten out of thick and battle-scarred "china," at a table covered with a dirty cloth, is nowhere near so appetizing as the same meal eaten when clean table linen and more delicate dishes are used. The use of pictures showing the latter condition in connection with food advertisements in particular is increasing very much. The following advertisement of Campbell's

Soup, Fig. VI, illustrates the point. Two well-dressed women and one man sitting around a charmingly decorated table, the butler about to begin serving the meal, is a simple description of the picture. The obvious moral is that Campbell's is the soup selected by persons of wealth, refinement, and good taste. Campbell's Soup should then, by association or fusion, come to mean the standard soup, especially for those who are in a financial position to obtain any article that they desire. Since it is relatively cheap, it may be used by any one, and if the fusion works as it is psychologically intended to, the user of the soup thereby puts himself in a class socially with the people of the picture. Another subtilty in the advertisement is the lack of the second man. Without words, the picture asks, Would you like to make the fourth? and suggests that you may by the proper use of Campbell's Soup.

Another advertisement which shows this second point in even a better and more striking way is the following one of the Eastman Kodak Company, Fig. VII. In it is no picture at all, simply a large space where a picture ought obviously to go. The argument of the advertisement describes a Thanksgiving dinner. All of the family is present but one person. What wouldn't they give for her picture? The fusion here is clear. The advertisement is directed to arousing in the reader the feeling of need for pictures, for the situation mentioned or a similar one is a very frequent occurrence in almost any family. Not content with using the argument of the text to implant the feeling of need, the concern adds to it by not using a picture in the advertisement, but leaves blank the space which is usually given over to a picture. The immediate impression when the advertisement is first seen is of the lack of a picture. This soon becomes a desire or need for one. Once this need is felt strongly enough, the individual will take some

Campbell's SOUPS

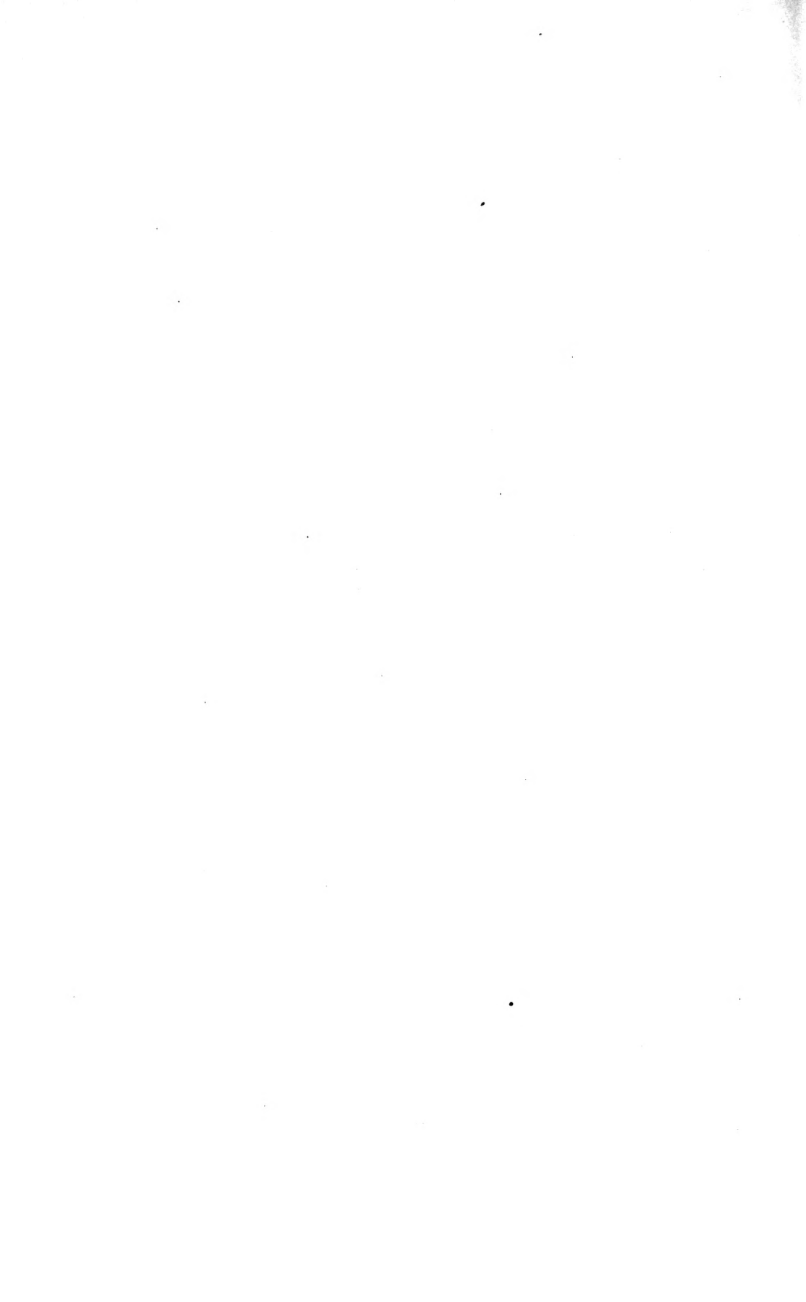


IN the finest homes and at the best-appointed tables *Campbell's Tomato Soup* is recognized as a dinner-course of facilities, quality, and suited to the most important occasions.

Served in bouillon-cups topped with whipped cream it makes an especially inviting appeal to the discriminating guest.

21 kinds Look for the red-and-white label 10¢ a can

FIG. VI.



means of satisfying the need, possibly the purchasing of a kodak.

Another example, which shows lack of fusion between the picture and the typical idea which the average reader has of the commodity, is the advertisement of Old Dutch

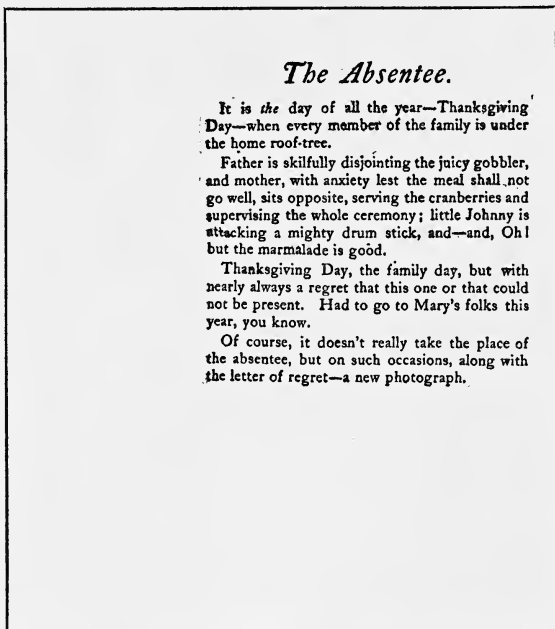


FIG. VII

Cleanser, Figure VIII. It also at the same time illustrates the extreme difficulty of using any form of pun in the display. The well-known slogan of Old Dutch Cleanser is "Chases dirt." The association which is being made in the present advertisement is that dirt hasn't a ghost of a chance. The pun occurs in the word *ghost* and is carried out in the picture by making certain parts of

the word *Dirt* appear ghost-like. From the standpoint desired, the advertisement must be considered as something of a failure. The ghostly dirt is sifting through the energetic Dutch maidens who should be pursuing the dirt, but who are actually going and looking in an entirely different direction. The fusion suggested by the advertisement is that the cleanser has nothing whatever to do with dirt except in a purely accidental sort of way.

From these examples, it will be clear that harmony must exist between the picture and the copy as used in any advertisement, for if there is no agreement, fusion is rendered more difficult, and incorrect or undesirable fusions are likely to result.

One of the best instances of the effect of past experience upon the present sensory data is to be found in the processes involved in reading. To the unsophisticated there is no particular problem there, for the words simply get from the page into consciousness. The entire process is, however, very complex, involving the action of the sense organ, the sensory regions of the brain, the associations which give rise to the meanings, and numerous other processes. The first part of the process may be called physiological and the second part psychological.

The most interesting of the physiological processes is the action of the eyes during reading. There are two possibilities, first that the eye moves slowly and continuously across the page, being stimulated as it goes by the curves and lines which make up the letters. This can be easily disproved, however, for it has been found experimentally that it is impossible for the eye to make a slow swinging movement of that sort. The eye, in going from one fixation point to another, moves at an approximately constant rate for each individual. The principal factor which affects its rate of movement



FIG. VIII.

is fatigue, for when the eye is tired the movement is slower. It is also true that during a swinging movement of this sort the eye is to all intents and purposes blind to objects in the visual field.

It has been proved by taking moving pictures of the eyes that while reading they jump from place to place on the line. The eye is first fixated upon a place near, but not exactly at, the left end of the line, thus giving a snapshot impression of that region, and then jumps to another place, further to the right, receiving in turn stimuli from that place. So, by a succession of jumps, the eye goes along the line of print, receiving impressions during the pauses. When the end of the line is reached, the eye swings back to the beginning of the next line and the process is repeated. The swinging of the eye from place to place takes very little time, whereas the duration of the pauses between jumps is very much greater, being on the average from six to twelve times as long. Consequently, it may be said that the fixation pauses occupy the greater part of the time which is spent in reading. Anything which will reduce the number of fixation pauses or their duration will make the reading of a printed page easier as well as shorter. Several of the factors which influence the number of stops or the duration of the stops are as follows:

1. In the long line, there are on the average more fixation pauses than in the short line, and, in general, the duration of the fixation pauses is greater in the longer line. This has been determined by actual experiment. Not only is this true, but also in reading the long line, the eye swings from point to point are slower. The reason is that in a short line, the angular distance through which the eye swings is small and consequently accompanied by little fatigue. As the angular distance becomes greater, there is a greater strain on the muscles, especially at the beginning and the end of the swing

which causes fatigue. As was shown above, fatigue makes

A Boy Tired of Asking for Money

and without advice from anyone decided to earn what he needed rather than to keep begging his parents for it. He was fourteen years old, enthusiastic, red-blooded—a regular out-of-doors boy. Hereasoned that he could do what thousands of other boys had done before him—and do it as well as they.

He undertook to sell the Curtis publications in his own town. Customers gladly bought from him. In a short time he had developed a route of 50 readers and was securing more each week. He now had the money he needed (and it was his because he had earned it), he had a growing balance in the local bank, and he had won a camera and several other splendid prizes.

We want more boys like him—wide-awake chaps who prefer to earn for themselves the money they need, who want the things all boys want, and who are looking for some way to get them.

Are you such a boy? If you are, drop us a postcard. We want to tell you just how, in a few hours each week, you can earn the spending money you need and be your own boss; how you can secure, free of charge, a camera, a bicycle, a tool chest—practically anything you want.

Just as soon as we hear from you, we'll send you an illustrated catalogue describing over five hundred fine prizes you can win in addition to your cash profits.

Box 750, Sales Division

The Curtis Publishing Company

Philadelphia, Pa.

FIG. IX.—Number 19. Full size.

the swing movement of the eyes take place at a slower rate. Experiments have shown that there are two lengths of line which are practically ideal from the standpoint of rate and ease of reading. These are the line the length of which equals the width of the newspaper column, about 2 to 2 $\frac{1}{4}$ inches, and the length of line of the average novel, about 3 $\frac{1}{2}$ inches. It has been found that these lines are read with fewer stops and on the average shorter stops than lines of greater or lesser length.

2. The familiarity or ease of the material also makes for shorter and fewer stops. Familiar words should therefore be used as far as possible. Ideas

which are familiar are likewise read more quickly than those which are relatively more unfamiliar.

3. Lower-case letters are read more easily and with fewer stops than upper-case or capitals. The reason usually given is this. We do not ordinarily read by letters, syllables or words, but by ideas. Each word stands for or represents an idea. Long practice has made us familiar with word forms so that it is not necessary to spell the words through. Each is recognized at a glance because of its peculiar form. It is like the recognition of a person. We do not stop and say that this is John Doe because the total impression is of blue eyes, brown hair, six feet of height, 180 pounds of weight, and so on. All of these things are fused together and the recognition of the individual is immediate. Likewise the recognition of words is immediate because each word has a different appearance from every other. When lower-case letters are used this is especially true, for here the letters composing the word differ in height or distance above the line, distance below the line, and thickness. This fact gives each word a characteristic form which is immediately recognized. With the upper-case letters, however, the only difference between letters is their thickness, for they all extend the same distance above the line and none extend below the line. This

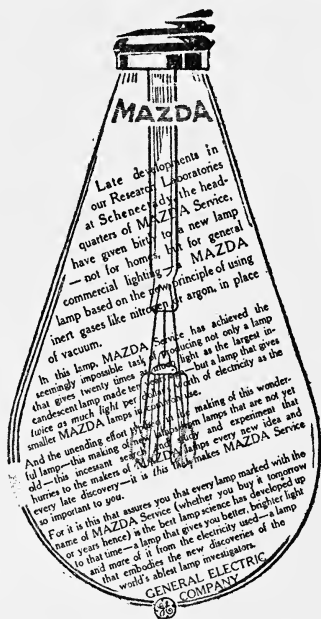


FIG. X. — Number 1. Reduced to half size.

makes the recognition of the word form a much more difficult matter. Experiments have indicated that the

TIFFANY & Co.

MODERATE PRICES AS WELL AS
THE HIGHEST STANDARD OF
QUALITY ARE CHARACTERISTIC OF
TIFFANY & Co.'S ENTIRE STOCK

JEWELRY
PEARLS
DIAMONDS
WATCHES
NOVELTIES
STATIONERY
BRONZES
CLOCKS
CHINA
GLASS
SILVER

CORRESPONDENCE INVITED. THE TIFFANY
BLUE BOOK WILL BE SENT UPON REQUEST

FIFTH AVENUE & 37TH STREET
NEW YORK

Adv. Form 8405, Sept. 17, 1914

December, 1914, Magazine

FIG. XI. — Number 12. Though printed throughout in upper-case letters, the arrangement of the advertisement is such that it is easily read. Reduced to half size.

lower-case letters may be read at an average rate of 5.01 per second, whereas upper-case letters are read at the rate of 4.55 per second.

4. The type face is also an important feature. Experiments by Scott have shown that the thickness of the lines which make up the letter determines not only the reading time but the number of errors made in reading. A thin, faint type occasions many errors and makes for slow reading. Miss Roethlein¹ made a series of

YOU may, for example, go up to New London for the Harvard-Yale boat race. When your observation car takes its creaking way to the middle of the drawbridge, Vanity Fair will be there to record the scene.

If by chance you sit in the evening on the terrace of the Cafe de Paris watching the new fashions as they pass all around you in the dusk, Vanity Fair will be at your elbow.

In the throng at the Newport

Casino next August when McLoughlin tries conclusions with one or another of the foreign tennis players —Vanity Fair will be ready to take photographs of the matches and of the spectators.

When through clouds of dust you motor to Meadowbrook for the Polo, there also will be Vanity Fair.

And when you go out on a yacht to Sandy Hook to see the newest Shamrock race the newest Defender, Vanity Fair will once more be with you.

For instance, suppose you buy the June number to-day and see for yourself how entertainingly it presents the various things that interesting people are doing this week. But Vanity Fair is useful as well as entertaining. Unless you already know what a practical, as well as a cheerful and amusing magazine it is, the June number may be a revelation. Secure it to-day.

FIG. XII.—Number 8A and 8B. Reduced to half size. The results of the experiment with this advertisement are especially interesting in showing the rapid rate at which letters printed in italics are read.

experiments upon the relative legibility of different faces of type. Her method was to determine the distance at which the lower-case letter could be correctly identified. The distances are given in centimeters.

TYPE	DISTANCE
News Gothic	166
Cushing O. S.	163
Century O. S.	162
Century Expanded	159
Cheltenham Wide	159
Scotch Roman	151
Bulfinch	150
Caslon	149
Cushing Monotone	144

¹ Roethlein, *American Journal of Psychology*, Vol. 23, pages 1-36.

Considerably different results might have been obtained if entire words had been used, for here the word form would have aided considerably; and if context too were added, still different results might easily have been found.

In an experiment performed at the University of Michigan upon reading, a group of twenty advertisements was mounted upon cardboard and each one read through by 50 persons. The average number of words read per second was determined. The advertisements are reproduced in the accompanying figures.

ADVERTISEMENT	WORDS READ PER SECOND
1	2.38
2	4.40
3	3.56
4	4.96
5	5.22
6	5.11
7 <i>a</i>	5.05
7 <i>b</i>	5.21
8 <i>a</i>	5.49
8 <i>b</i>	5.12
9	3.42
10	4.24
11	3.33
12	4.32
13 <i>a</i>	4.91
13 <i>b</i>	4.93
13 <i>c</i>	3.37
14	4.10
15	4.87
16	4.91
17	5.33
18	4.78
19	5.93
20	5.50

It will be seen that in No. 19, more than twice as many words were read per second than with No. 1, which proved to be the worst of the lot from the standpoint of rate of reading. A study of the advertisements which were read rapidly will show that they conform

very well to the rules which have been laid down. Those which were read slowly have usually some glaring fault. In No. 1 the print runs on a diagonal, consequently calling for very unnatural eye movements. Likewise the letters are obscured by the picture of the globe and filament. No. 11 is printed throughout in capital letters and the letters are gray, not black, offering little contrast to the white background. No. 9 is printed in letters so large that it is impossible to get the impression of the word form at the normal reading distance.

The interpretation of the words as they are printed goes on in the same way that any other association takes place. Our first experiences are usually with concrete objects. The object is seen again and again, the different experiences becoming associated so that each may in turn call up any of the others. The visual experience may stand for the auditory, or the gustatory, or any other experience which we may have had. Then the object receives a name, and the name, in process of time, becomes associated with the object, so that when the name is uttered, some image of the object is called up. Later still, we are taught that certain arbitrary visual symbols represent certain sounds, and the sound having been associated with the object in the past, these visual symbols serve now to call up an image of the object. Because of this fact, that the word is associated with the various other ways of experiencing the object, it calls up the object and is consequently understood.

CHAPTER XII

MEMORY

IN this chapter, certain complex phases of the recall process will be taken up, under the general name of memory. By memory is meant the awareness of things not present to the senses with the additional awareness that we have had a like experience in the past. An analysis of the memory process shows that it is composed of four phases — learning, retention, recall, and recognition.

Learning is simply the act of forming associations; retention, keeping the modifications in the brain; recall, the passing of a new nerve current over the modified brain regions; and recognition, the linking up, by means of association, the present experience with the past. In addition to the laws quoted in Chapter X for the ready and easy formation of associations, certain others have been worked out from a consideration of other principles. Most of the laws have been determined by the use of very abstract material, nonsense syllables. A nonsense syllable is composed of two consonants separated by a vowel, the combination not making sense in any language with which the subject is familiar. *Beb* would be a nonsense syllable, *bib* would not. Such material was used because it was thought that there would be no accidental associations between such manufactured words as would probably exist between words which make sense. The nonsense syllables were supposed to present homogeneous material

as far as difficulty of learning is concerned. Other experiments have indicated that the results obtained by the use of nonsense syllables can be transferred, with modifications only of amount remembered, to the learn-

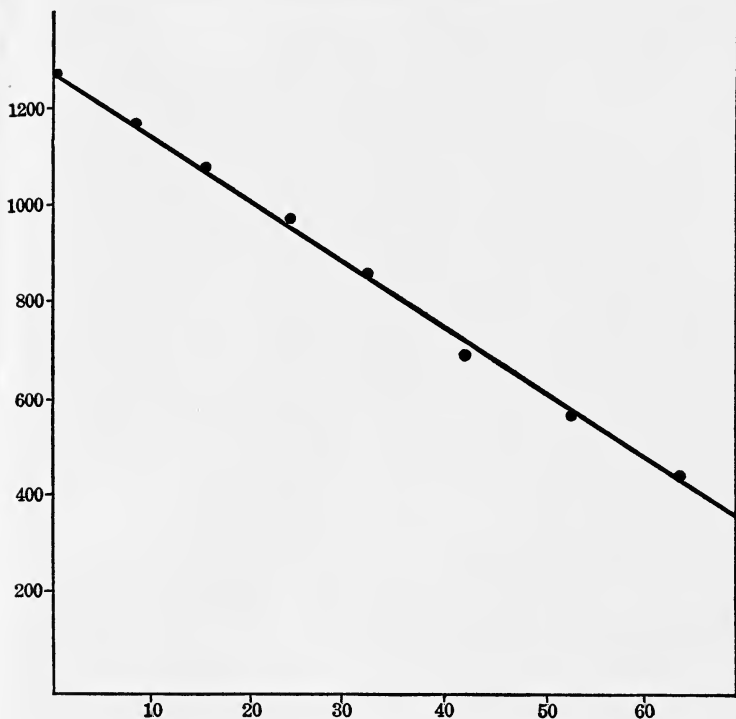


FIG. XIII. — Curve showing that the amount learned varies directly with the number of repetitions.

ing of sense material. Consequently, the general laws of learning as determined by these experiments will be given, and later on the results of other experiments in which advertising material was employed.

1. The first of the laws is that the amount learned varies directly with the number of repetitions. If it requires sixteen repetitions to learn ten nonsense syllables, they will be half learned with eight repetitions. It must be pointed out that there is considerable difference between half learning and learning half of such a series. At the end of eight repetitions, the subject probably could not repeat five of the syllables. What is meant is this: if learning is the formation of associations and the forming of associations is the wearing down of resistance of synapses, the work of forming the association is half done with half the number of repetitions.

This was proved by Ebbinghaus in the following manner. Series consisting of sixteen nonsense syllables were read a given number of times, either 8, 16, 24, 32, 42, 53, or 64. After twenty-four hours, the series was relearned and the number of seconds necessary for the relearning was determined. This time was compared with the number of seconds necessary to learn an entirely unfamiliar series. The results as shown in the table below indicate that if the series of syllables was entirely unfamiliar, it took an average time of 1270 seconds to learn it. If the series had been repeated eight times, however, it took an average of only 1167 seconds to relearn it 24 hours after.

No. OF REPETITIONS	No. OF SECONDS TO RELEARN AFTER 24 HOURS
0	1270
8	1167
16	1078
24	975
32	863
42	697
53	585
64	454

This table is plotted graphically in Fig. XIII. Since the result is a straight line, it may be considered that

the law is demonstrated. Ebbinghaus, himself, proves it in a different way, viz., by dividing the time saved by the preceding repetitions. He found that for each repetition which had been made 24 hours before, there was a saving in relearning of 12.7 seconds, with an average variation of 0.3 second.

As applied to advertising, this means that the advertiser, in order to make his commodity remembered, must insert his advertisement with considerable frequency.

2. The amount remembered in any series depends upon the length of the series. This was brought out in Miss Calkins' experiment on association mentioned in Chapter X. It will be recalled that in the short series, consisting of seven pairs of associations, 35 per cent of the total number were recalled, whereas in the longer series, consisting of ten or twelve pairs, only 26 per cent were remembered.

Another way of stating the same law is that the number of repetitions necessary to learn the series varies with the length of the series. In connection with the number of repetitions necessary to learn nonsense syllables, Myers¹ quoting from Ebbinghaus gives the following figures:

No. of syllables	7	12	16	24	36
No. of repetitions	1	16.6	30	44	55

Meumann² gives the following figures, which show a considerably fewer number of repetitions to be necessary:

No. of syllables	8	12	16	18	24	36
No. of repetitions	5.2	10.4	17	21.5	30	32.5

3. A third law, which has been suggested by the work upon association, is that the first and last parts of a

¹ Myers, "Textbook of Experimental Psychology," page 158.

² Meumann, "The Psychology of Learning," page 276.

series are learned with fewer repetitions than the middle portion. To quote again from Myers:¹ "When a series of ten or twelve members is learnt by the prompting method, it is seen that the impression made by the different members varies according to their position in the series. The following experimental data indicate that the first member of the series is most easily remembered, that the second and last members follow next":

ORDER OF WORDS IN SERIES	NO. OF PROMPTS 12 WORDS	NO. OF PROMPTS 10 WORDS
1	0	0
2	11	3
3	21	6
4	13.5	9
5	35	23
6	36	24
7	36	31.5
8	29.5	25
9	43	23
10	37.5	5.5
11	34	
12	11	

The same phenomenon was mentioned under the discussion of primacy and recency as factors in association. It will be brought out even more strikingly in connection with the next experiment to be reported, an experiment which was performed on the memory value of advertisements. Very similar experiments have been undertaken by three men at three different universities. While the results are very similar, certain differences, partly of method and partly of result, appear, which makes a separate discussion of the three sets of results necessary.

Strong, at Columbia, obtained results from 137 women showing the number of advertisements they remembered. An article in a popular magazine was as-

¹ Myers, "Textbook of Experimental Psychology," page 159.

signed as necessary class reading. Each student was furnished with a copy of the magazine and a week later was tested for the memory of the advertisements which were contained in it. The recognition test was employed, each person being handed an envelope containing all of the full page advertisements which had appeared in the magazine together with a fair number of others and was asked to select those which were remembered to have been in the magazine.

The chart showing the relative memory values of the different pages in the front and back sections of the magazine as determined by Strong is given below, Fig. XIV.

Starch ¹ gives certain other details of this experiment. Of the 137 women who were tested, —

“ 46 % could not recognize a single advertisement afterward.

24 % could recognize from 1 to 10 advertisements each.

30 % could recognize from 11 to 50 advertisements each.

Of the 24 %, 16 % could recognize from 1 to 5 each,

8 % could recognize from 6 to 10 each,

Of the 30 %, 15 % could recognize from 11 to 20 each,

9 % could recognize from 21 to 30 each,

3 % could recognize from 31 to 40 each,

3 % could recognize from 41 to 50 each.

“ . . . The 24 per cent are those readers who noticed only the advertisements in preferred positions. Column A represents those advertisements that were within ten pages either of cover or reading matter; Column B represents those advertisements that were more than ten pages from a cover or reading matter.

	COLUMN A	COLUMN B
46 % of the women remembered . .	0 %	0 %
24 % of the women remembered . .	5 %	1 %
30 % of the women remembered . .	15 %	9 %
Total of the 137 women . .	6 %	3 %

¹ Starch, “Advertising,” page 106.

"These figures show that the advertisements in and near the preferred positions have double the memory value of those which are submerged in the body of the advertising sections."

A like experiment, in which 374 persons were tested, was conducted by Starch.¹ The *Cosmopolitan* for April, 1910, and *Everybody's* for March, 1909, were the

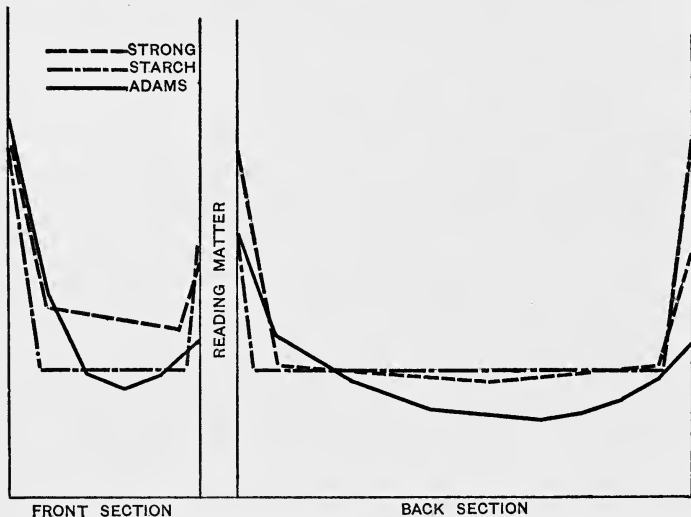


FIG. XIV. — The curves show the relative memory value of the different parts of the front and back advertising sections of the standard magazine.

magazines used. The subjects were given fifteen minutes to turn every page in the advertising section and were told to read what they chose and to skip what they chose. To correct for the fact of familiarity, since undoubtedly many of the advertisements were well known to the readers, he asked each of those who partook of the test to write down all of the brands of

¹ Starch, "Advertising," pages 30-34, 211-212.

articles he was familiar with either through advertising, use, or otherwise.

The main facts are brought out by the curve shown in Fig. XIV. Starch concludes from the experiment "that the outside cover is probably at least three times as valuable as any inside position, (2) that all positions within approximately eight pages from the end of the advertising section have greater value than other in-

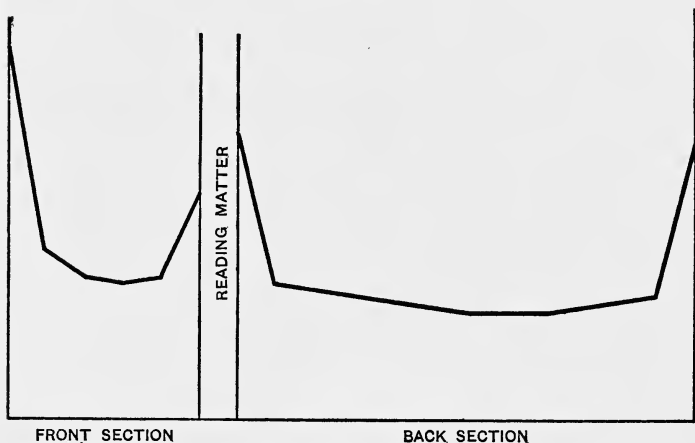


FIG. XV. — Curve showing the average memory value of the different parts of the front and back advertising sections of the standard magazine. This curve is the result of combining the three given in Fig. XIV.

side positions. These values gradually diminish as indicated by the drop of the curve. This advantage does not extend as far into the advertising section from either end of the reading section. (Apparently it extends only over four pages.) The positions facing the first and last pages of reading matter have approximately two thirds of the value of the outside cover."¹

A similar experiment was performed on a group of 89

¹ Starch, "Advertising," page 112.

students at the University of Michigan, in which the magazine used was the *Cosmopolitan* for March, 1913. The curve showing the memory value of the different advertising pages is appended, Fig. XIV.

The next step in the problem is to put the three curves together. It seems to be fair to do this, in spite of the differences in method which were employed. The fusion of the three curves was accomplished by taking the high point on each, calling that 100 per cent and reducing the other values of that curve to percentages of the 100. When this is done, the following curve, Fig. XV, is obtained, showing the average results of the three experiments.

Since the results in all of these memory experiments are liable to large error on account of familiarity of the material, the chance position of advertisements which aroused considerable interest in several of the observers, and other similar considerations, the results obtained from them should be compared with the results of other experiments which were conducted on a more scientific basis. Starch and Hollingworth both have performed experiments with more abstract or at least more homogeneous material and their results will be mentioned briefly.

Starch used a pamphlet containing six pages of the standard magazine size. Upon the center of each page was placed a nonsense syllable. This, or another pamphlet which was made up in the same way and in which the same syllables were used but distributed differently, was handed to 50 persons who were asked to read it through and then were given paper and asked to write down all of the syllables which they remembered. The results show that the syllables occurring on the first and last pages were remembered 34 times. Those on the second and next to the last page were remembered 26 times, while the average for those on all of the other

pages was 17. It will be seen that the middle pages were remembered only half as often, 17 to 34, as the outside pages.¹

Hollingworth approached the problem in a somewhat different way. Instead of using nonsense syllables, he employed geometrical figures. The magazine contained 20 pages, 10 in the front section and 10 in the back. In the center of each page was affixed a geometrical form in solid black. All of the figures used were of approximately the same area.

A preliminary experiment showed the attention value of the different figures so that this could be discounted by reducing all to a common basis. After the attention value of the figures had been determined, the book was handed to 25 persons who were allowed to look it through for a limited time. Each person was later presented with 50 geometrical figures and asked to pick out from them the 20 which had appeared in the magazine. The results showed, (1) that the memory value of the front section was considerably greater than that of the back section, 1.00 to 0.69. (2) The page having the highest memory value was the one facing the reading matter in front and the second best was the one facing the back page of reading matter. (3) The first page of the front section and the last page of the back section had the lowest memory values of any of the pages in their respective sections.²

The results of the two experiments by Starch and Hollingworth apparently are quite different. Since they were done under such different conditions, the material employed so diverse and the make-up of the two dummies so dissimilar, it is almost impossible to compare them. In Starch's there was but one section, in Hollingworth's there were two, the front and the

¹ Starch, "Advertising," page 110.

² Hollingworth, "Advertising and Selling," pages 86-87.

back. The interruption may have had something to do with the greater memory value of the pages facing the reading matter, undoubtedly had a great deal to do with it. Both emphasize the fact that there are certain positions in the advertising sections which, on the average, have higher memory values than the remaining portions, viz., the extremes, either the beginning or the end. Taking the two experiments together, it is probable that both the beginning and the end of the sections have a higher memory value than any other part.

4. A fourth law is that memory depends upon the amount of attention which is paid to the stimulus. Since, in the discussion of attention, it was seen that the size of the stimulus increased its attention value, the larger advertisements ought to have a greater memory value. This is, on the average, undoubtedly true and is proved by an experiment which will be described shortly. In the second place, if a stimulus is repeated, the total amount of attention which is given it is greater than if it is presented only once. This will be proved by the same experiment. But a third possibility presents itself. Which will have the greater attention value and consequently the greater memory value, two or more advertisements which are exactly alike or two or more advertisements of the same commodity which are different in make-up? It also appeared that the page position played a part in determining the attention given to the advertisement; and, lastly, the so-called interest incentives are supposed to be more effective than those which are purely mechanical. The following experiments throw some light upon these questions:

Two dummies were prepared, one of which contained advertisements repeated in duplicate. The other consisted of advertisements of the same commodities, but the repe-

titions were variations, not duplicates. The first dummy, in which duplicates were used, was made up as follows :

4 full page advertisements appeared once,
4 full page advertisements appeared twice,
4 full page advertisements appeared 4 times.

4 half page advertisements appeared once,
4 half page advertisements appeared twice,
4 half page advertisements appeared 4 times.

4 quarter page advertisements appeared once,
4 quarter page advertisements appeared twice,
4 quarter page advertisements appeared 4 times.

The second dummy was made up in the same way, variations of advertisements of the same commodity being used instead of duplicates. The advertisements were all the size of those contained in the *Saturday Evening Post*. The same subjects, 40 in number, were used in both tests.

Each subject was handed one of the dummies and was told to look it over at his leisure, turning each page of the advertising section. The average time taken by each subject with each dummy was about ten minutes. After finishing with the dummy, he was instructed to write down all that he could remember about the advertisements which he had seen. One week or more afterwards, he was handed the other dummy and given the same instructions. Half of the subjects started with the dummy containing duplicates; the other half, with the dummy containing variations.

The results obtained from the first dummy are presented in the following table. The figures show the total number of credits received by each form of presentation of the material. Since in both dummies certain advertisements were shown but once, the average of the results was used to determine the value of the advertisements shown but once :

	ONCE	TWICE	4 TIMES
Quarter page	16	26	45
Half page	32	37	83
Full page	47	80	108

If the quarter page shown once is considered the standard of stimulation, the half page shown once and the quarter page twice represent a doubling of the stimulation. Were both repetition and increase in size of equal value, the figures for the half page appearing once and the quarter page appearing twice should be the same, but they are not, indicating rather that size is a more important factor than repetition. This point will shortly be considered more in detail. Similarly, the full page shown once, the half page shown twice, and the quarter page shown four times represent four times the amount of stimulation. The full page shown twice and the half page shown four times are eight times the standard stimulus, and the full page shown four times is sixteen times the standard.

If the table given above is reduced to ratios, the quarter page appearing once being taken as the standard, the following table is obtained :

	ONCE	TWICE	4 TIMES
Quarter page	1.00	1.62	2.82
Half page	2.00	2.32	5.19
Full page	2.94	5.00	6.76

If, from this table, another one is prepared, showing the effect of constantly doubling the amount of stimulation, the following is obtained :

UNITS OF STIMULATION

	1	2	4	8	16
	1.00	2.00 1.62	2.94 2.32 2.82	5.00 5.19	6.76
Average . .	1.00	1.81	2.69	5.10	6.76

These ratios vary approximately as the 1.35 root of the amount of the stimulus.

The differences in memory value between repetition and size have been disregarded in the tables so far. The table given below shows the effect of increasing size. The quarter page, no matter whether it is presented once, twice, or four times, is considered as the standard, and the half and full page values are reduced to ratios of the quarter page.

	QUARTER	HALF	FULL
Once	1.00	2.00	2.94
Twice	1.00	1.42	3.08
4 times	1.00	1.84	2.40
Average	1.00	1.76	2.80

These ratios vary approximately as the 1.3 root of the number of presentations or amount of stimulation, the 1.3 root of 1 being 1, of 2 approximately 1.70, and of 4 about 2.9.

Before trying to establish correlations between these results and those of other investigators, I shall present the rest of my material. When all the data are at hand, definite relations will be easier to establish.

Turning now to a consideration of the effects of frequency of insertion, we regard one presentation of the

material as the standard and reduce the other values to ratios of it. The table showing these ratios follows:

	ONCE	TWICE	4 TIMES
Quarter page	1.00	1.63	2.81
Half page	1.00	1.16	2.60
Full page	1.00	1.70	2.30
Average	1.00	1.49	2.57

Here we find that the ratios vary approximately as the 1.6 root of the number of presentations.

The conclusion which we are forced to accept by this part of the experiment is that size is of more importance in the formation of associations than repetition. This point will be considered more in detail at a later period.

With the second dummy, which was made up of varied advertisements of the same commodity where repetition was necessary, the following totals were received by each of the different arrangements:

	ONCE	TWICE	4 TIMES
Quarter page	16	46	85
Half page	32	86	117
Full page	47	108	149

Reducing this table to ratios of one presentation of the quarter page, as was done with the other dummy, we obtain the following:

	ONCE	TWICE	4 TIMES
Quarter page	1.00	2.88	5.31
Half page	2.00	5.37	7.31
Full page	2.94	6.75	9.31

Another table, showing the effects of repeatedly doubling the amount of stimulation, follows:

UNITS OF STIMULATION

	1	2	4	8	16
	1.00	2.00 2.88	2.94 5.37 5.31	6.75 7.31	9.31
Average .	1.00	2.44	4.54	7.03	9.31

These figures do not follow an X^n curve; but they do indicate quite forcibly that variability is a more important consideration than duplication in advertising.

Turning now to the consideration of the effect of size, the following table gives the ratios, considering the quarter page as the standard:

	QUARTER	HALF	FULL
Once	1.00	2.00	2.94
Twice	1.00	1.84	2.35
4 times	1.00	1.38	1.76
Average	1.00	1.74	2.35

These figures agree fairly well with the results obtained from the dummy containing duplicates, giving, however, a slightly lower ratio for the full page. The average of the two is given below:

	QUARTER	HALF	FULL
Duplicates	1.00	1.76	2.80
Variations	1.00	1.74	2.35
Average	1.00	1.75	2.58

A comparison of these results with those of other experiments will now be made. Scott¹ found the following ratios, his results being uncorrected for familiarity:

	QUARTER	HALF	FULL
Recognition	1.00	2.32	3.74
Recall	1.00	2.52	5.53
Average	1.00	2.42	4.64

His general conclusion is that there is a more than proportionate increase in memory value with increase in size of the advertisements.

Starch² gives the following figures. When the ratios representing the memory value are uncorrected for familiarity, he obtained the first set of ratios; when correction was made for familiarity, he obtained the second:

QUARTER	HALF	FULL	TWO PAGES
1.00	2.43	5.23	6.98
1.00	1.77	3.44	4.41

Starch's results agree with Scott's in that, when uncorrected for familiarity, they show a more than proportionate increase in memory value with increase in the amount of space used. Where familiarity is allowed for, however, the ratios show a less than proportionate increase.

Strong³ gives the results of several experiments, showing the effect of increasing space. His ratios follow:

¹ Scott, W. D., "The Psychology of Advertising," pages 168-169.

² Starch, D., "Advertising," pages 30-48.

³ Strong, E. K., *Psychol. Rev.*, Vol. 21, pages 137 ff.

	QUARTER	HALF	FULL
(A)	1.00	1.41	2.15
(B)	1.00	1.11	1.13
(C)	1.00	2.39	3.65
(D)	1.00	1.53	2.34
(E)	1.00	1.66	2.41
Average	1.00	1.62	2.34

Strong's results indicate a less than proportionate gain in memory value with increase in size in all cases but one.

If we take the results of all of these investigations and average the ratios, it may bring out an approximate truth. In averaging the ratios, all of the experiments will be considered to be of equal value, no allowance being made for the greater number of subjects used in certain of the experiments. The ratios are given below :

	QUARTER	HALF	FULL
Scott	1.00	2.32	3.74
Scott	1.00	2.52	5.53
Starch	1.00	2.43	5.23
Starch	1.00	1.77	3.44
Strong	1.00	1.41	2.15
Strong	1.00	1.11	1.13
Strong	1.00	2.39	3.65
Strong	1.00	1.53	2.34
Strong	1.00	1.66	2.41
Adams	1.00	1.76	2.80
Adams	1.00	1.74	2.35
Average	1.00	1.87	3.16

These ratios for the half and full page spaces are undoubtedly higher than they should be. For in four of Strong's experiments, in one of Starch's, and in Scott's there is little if any selection of the advertisements used.

The general scheme was to use the advertising section of some current magazine as the material in the experiment. The greater familiarity of the half page and especially of the full page advertisements undoubtedly raised the ratios for those sizes somewhat above the normal memory value. For in advertising, as elsewhere, there is a natural selection going on, so that the full pages tend to represent those firms which have advertised successfully for some little time. The mere fact of familiarity gives to these advertisements all the value to be derived from repetition, either from duplicated advertisements, or, more probably, from varied advertisements. We shall see below that variation in the form of presentation is a very important principle in relation to memory value.

If we accept Starch's¹ method of allowing for familiarity, we find that the quarter page should be allowed 100 per cent, the half page 73 per cent, the full page 63 per cent, and the two page 62 per cent of the values actually received. Reducing the half page and the full page values by these amounts in the seven experiments mentioned above, the following ratios result:

	QUARTER	HALF	FULL
Scott	1.00	1.69	2.36
Scott	1.00	1.84	3.50
Starch	1.00	1.77	3.44
Strong	1.00	.81	.71
Strong	1.00	1.74	2.30
Strong	1.00	1.13	1.48
Strong	1.00	1.21	1.52
Average	1.00	1.46	2.20

Taking the other series of experiments, in which the advertisements were selected to avoid undue familiarity,

¹ Starch, D., "Advertising," page 34.

though the values were undoubtedly somewhat affected by it, the following set of ratios results :

	QUARTER	HALF	FULL
Strong	1.00	1.41	2.15
Adams	1.00	1.76	2.80
Adams	1.00	1.74	2.35
Average	1.00	1.64	2.43

A word should be said in explanation of the differences which exist between Strong's results and ours. In the first place, our advertisements were possibly slightly more familiar than his. In the second place, the time intervals in the two experiments were different. Strong presented his duplicated advertisements one month apart and tested a month later. In our experiment, the successive presentations of the material occurred within a space of ten minutes and the test followed immediately after. The effect of this should be to raise our values somewhat.¹

The problem of the frequency of insertion of the advertisement is the next one that needs discussion. Comparatively little work has been done on this point, so the facts are not so definitely known. A summary of the experiments which have been performed will disclose the available data.

Strong's ² results show the ratios for one, two, and four presentations to be 1.00; 1.25; 1.62. Our results with duplicated advertisements give these ratios: 1.00; 1.49; 2.60. The average of the two is: 1.00; 1.37;

¹ Strong, E. K., *Psychol. Rev.*, Vol. 21, page 147, footnote.

"From data now being accumulated we find that shorter intervals, as one week, give ratios indicating a greater effect from two or four presentations than shown here."

² *Ibid.*, page 146.

2.11. It will be seen that these values are somewhat lower than those obtained for increase in size of the advertisements. It seems to be pretty well proved, then, that size is a more important factor from the standpoint of memory than is frequency of insertion where the repeated advertisements are exact duplicates.

When we consider the effect of varied advertisements rather than duplicates, we find that repetition is a greater factor than increase in size, as the following table will show :

	ONCE	TWICE	4 TIMES
Quarter page	1.00	2.88	5.31
Half page	1.00	2.70	3.66
Full page	1.00	2.30	3.17
Average	1.00	2.63	4.05

These ratios are considerably above those obtained for increase in size of the advertisements, which were 1.00; 1.64; 2.43.

We are also justified in stating that duplication has a much lower memory value than variation. The following table will make this clear :

	DUPLICATION	VARIATION
1 appearance	1.00	1.00
2 appearances	1.49	2.63
4 appearances	2.60	4.05

This table shows very strikingly that variation possesses a very much greater memory value than duplication.

There are at least two reasons why this should be the

case. In the first place, the degree of attention is undoubtedly an important factor. When we see a duplicated advertisement the second time it is relatively uninteresting, consequently the second impression is not so great as the first. But with the variation, there is always novelty, so that attention may be at its maximum.

In the second place, where duplicates are used, but one type of appeal can be successfully employed. This may be for the reader an uninteresting one, consequently he may neglect the advertisement entirely. Where variations are used, however, it is possible to make as many different types of appeal as there are variations in the series. In addition to producing greater attention, variation is more likely to connect the advertisement with the individual's series of interests, thus tending to give it a greater memory value.

The Memory Value of Right- and Left-hand Pages.— It will be recalled that in the experiment upon the attention value of right- and left-hand pages, it was found that the right-hand page had a higher value by a ratio of 100 per cent to 65 per cent. The question then arose concerning the memory value of right- and left-hand pages. Since, normally, different advertisements appear upon the two pages, it is obviously unfair to compare their memory value, for other factors would probably come in to modify the results. To avoid this possibility of error, the following method was adopted. Two copies of a popular magazine were obtained, and one was left exactly as it was. In the other, each page in the advertising section was removed and then replaced in such a way that those advertisements which had originally appeared upon a right-hand page were now presented upon a left-hand page and those which had originally been on the left-hand page now appeared on the right-hand page. In like manner, those which had been on the right side of the page now appeared on

the left side of the page. Sixty-eight students in the class in elementary psychology were experimented upon. Approximately half were given one copy of the magazine and the other half were given the other copy. They were told to look through the advertising sections of the magazine for fifteen minutes and at the end of that time were instructed to write down all that they could remember concerning the advertisements.

The credits received by the different kinds and classes of advertisements were grouped together and worked out in several different ways. The first point which received consideration was the one already mentioned, viz., the memory value of the right- and left-hand pages. Omitting the front and back covers, inside and outside, and a colored insert which appeared in the middle of the back section, all the advertisements which appeared on the right-hand pages were grouped together and likewise all those which appeared on the left-hand pages. The same advertisement appeared in one case upon the right-hand page, in the other upon the left-hand page. In this way, the effect of the position on memory could be determined. Any incidental superiority in memory of one group of subjects over the other was offset because there were two comparisons, what was right-hand for one group being left-hand page for the other and what was left-hand page for one being right-hand for the other. Because of this fact, any differences in memory ability canceled each other. The results as worked out gave the following ratios:

MEMORY VALUE OF	
Right Page	Left Page
1.000	.572

This table shows that the advertisements which appeared on a right-hand page were remembered almost twice as well as those which appeared on the left-hand page. This figure is very similar to the one which was obtained for the relative attention value of the two pages.

Another point which was determined was the memory value of the upper part of the page as opposed to the lower. Here there is a chance for certain errors to creep in, but the data are very suggestive. The results showed that the advertisements which were on the upper half had just twice the memory value of those which appeared on the lower half of the page. This result again is very similar to the one on the attention value of the halves of the page.

The next point considered was the relative memory value of the inside edge of the page as opposed to the outside edge of the page. In the make-up of the two magazines, an advertisement appearing on the inside edge in one would appear on the outside edge in the other. The results showed that where the inside edge had a memory value of 1.00, the same advertisement appearing on the outside edge would have a memory value of approximately 2.50. Put the other way around, if the memory value of the outside edge is 1.00, the value of the inside edge will be .400. This difference was much greater in the case of the smaller advertisements. The eighth-page advertisements, for example, which were along an inside edge were seldom mentioned at all, but as soon as they were switched to the outside edge, they would be mentioned quite frequently.

It was found that the size of the type in which it was printed determined the memorability of the headline. In the advertisements in which the caption was remembered the most frequently, the type was from 18 point to 30 point in size. There appeared to be no relation between the size of the advertisement and the size of

the caption type in order to give it a maximum of memorability.

In order that the firm name should be remembered, it was found to be essential that the name should be repeated at least twice, once in the copy and once on the picture of the article advertised. Where a return coupon was used, it was found that if the firm name was placed near the coupon, just to the left, for example, the name had a high memory value.

Concerning the memorability of illustrations, the following points were determined by the experiment. It was found that the advertisements containing pictures or the pictures themselves had a 10 per cent higher memory value when the illustration took the form of a photograph rather than a drawing. But it was necessary for the photograph to be related in meaning to the article advertised, to the heading, and to the name of the product. If the picture was of a person, the person must face either towards the reader, or towards the reading matter of the advertisement, or in some position between them. It was found that if the picture faced towards the outer edge of the page, the memory value was very low; whereas if it faced towards the center of the magazine the memory value was on the average increased fourfold.

The effect of the incentive, either mechanical or interest, was determined by Strong in connection with an experiment devised to test the memory values of different parts of the advertising sections of a magazine. Twenty advertisements out of the entire lot were selected, the ten which had the highest memory value and the ten which had the lowest memory value. These were considered by six business men and three psychologists, who reported on the type of incentive which was most prominent in each advertisement. The results were then compared, and it was found that with the ten best remembered the ratio of interest to mechanical in-

centives was 1.00 to .27; with the ten least remembered the corresponding ratio was 1.00 to .93.¹

This experiment indicates that the interest incentives are much more likely to give an advertisement a high memory value than the mechanical incentives. It is unfortunate, however, that it was impossible to make any allowance for familiarity, for undoubtedly the commodities in the first list are much better known than those in the second, possibly enough so to account for the differences in memory value.

5. A fifth law which may be mentioned is that rhythm is an aid to memory. Any material which is presented in a rhythmic form is much more likely to be remembered than material which is presented in a non-rhythmic manner. This is especially true of the individual who has had little practice in learning, for Meumann reports that after a considerable amount of practice in learning, the effect of rhythm disappears. The influence of rhythm is very familiar. A catchysong will run through our heads for hours after we have heard it. Limericks have a way of persisting in spite of our endeavors to get rid of them.

All rhythms are not equally efficient, however.

In an experiment performed at the University of Michigan to test the effect of the different forms of rhythm, a total of 180 persons was tested, 80 men and 100 women. The material consisted of series of 9 and of 10 digits which were arranged in a purely haphazard order. The results for a non-rhythmic series, trochaic, iambic, dactylic, and anapæstic series are given below:

	N.R.	TROC.	IAMB.	DACT.	ANAP.
Men . . .	92.1	91.2	96.9	109.6	108.1
Women . .	91.8	89.9	94.2	109.4	111.8

¹ Hollingworth, "Advertising and Selling," page 129.

The table indicates that, on the average, material which is presented in a rhythmic form is more easily retained than material which is given in a non-rhythmic manner. The three-part rhythms give a greater memory value than two-part meters.

The men, in general, are more influenced by falling inflections and the women by rising inflections. The men are superior to the women when the material is presented in two-part rhythms; but the women, on the average, are more affected by three-part rhythms.

In selecting a trade name or a slogan which will be easily remembered, it is well to keep these points in mind and secure one which has a natural rhythm. This will add considerably to the likelihood of its being remembered.

6. A sixth principle is that, in order to learn quickly, it is necessary to have the will to learn. If the individual preserves a purely passive attitude towards the material which is presented to him, the learning is slow, if it takes place at all. If there is a real desire to learn and an active effort exerted in that direction, much more can be retained from an equal number of repetitions. This is very probably a special condition of the influence of purpose or attitude upon the direction of associations. Some few months ago, the writer had occasion to use the squares of numbers from 1 to 35 with considerable frequency. Each number was undoubtedly used 100 different times. A table had been made and the numbers, together with their squares, had been written down. Whenever the square of a number was wanted, the table was consulted and the number written down upon another piece of paper. After the figuring was done, he wondered how many of the squares he could remember. Obviously, the squares of the numbers from 1 to 13, 15, 20, 21, 25, 30, and 31 were known. Not another one was known immediately with certainty. They could be puzzled out with some effort.

He then read over the unknown numbers until they were thoroughly familiar, counting the repetitions which were necessary until all were learned. He then prepared another table, containing the same number of squares as were unknown in the first table when the learning process started, and learned the second list. The second list required two and a half times the number of repetitions of the first after the intention to learn was present. The whole 100 repetitions which were made for the purpose of writing the numbers down to obtain the standard deviation of a series was equivalent in the power of forming associations to 15 repetitions made with the intention of learning.

In the first case, the purpose of becoming conscious of the numbers was to enable him to write them down. For that purpose, there was no need to have them persist in consciousness at all; in fact, it would have been detrimental. The hand was all set for the writing process, some degree of cortical action was taking place in the hand-motor region of the brain, consequently, the nerve current went in that direction. In the second case, there was no intention to write, consequently, no partial activity in the hand-motor region of the cortex. The nerve energy which came in from the stimuli was consequently used to a greater extent in the formation of associations.

7. Another law is that if the repetitions are spread out they are more efficient than when grouped. Twenty-four repetitions given on one day are very much less efficient than 24 repetitions occurring one each day for 24 days. This is due to the so-called perseveration tendency, an application of the physical principle of inertia to the nervous system. When a nerve current arrives at the cortical cells, those cells do not act immediately. There is a certain latent period before any action results. In the same way, when the stimulus ceases, the

cells continue active for some little time afterwards. This gradual dying-out process aids materially in the formation of associations.

In addition to the laws of learning, certain of the laws of forgetting are important for the advertiser, because forgetting is one of the main principles for testing the strength of any association or memory. Those associations which are weakest disappear or are forgotten first. The laws of forgetting have been determined largely by the use of nonsense materials, though in certain experiments sense material has been used.

1. The first law of forgetting is that the rate of forgetting is very rapid at first, then gradually decreases. Two experiments will be quoted. The first, performed by Ebbinghaus on nonsense syllables, was carried on as follows. A series of 13 nonsense syllables was learned to such an extent that it could be said through *once* correctly. After an interval, 20 minutes, 1 hour, 8.8 hours, 24 hours, and so on, the series was relearned, and the amount of time saved in relearning was taken as a measure of the amount forgotten. Radossawljewitsch, who required that the syllables should be learned so that the series could be said through *twice* without mistake before it be considered learned, thus making stronger original associations, obtained percentages which show a slower rate of forgetting for the shorter times. He also performed experiments on the retention of poetry. The results of these two investigations are given on the next page.

In the second experiment, the poor retention after eight hours was thought to be due to fatigue in the latter part of the day. The main difference, however, is the greater amount retained after the passage of relatively short times. This possibly is due to the effect of "overlearning," the more than adequate formation of association pathways. One other point which should

INTERVAL	EBBINGHAUS	RADOSSAWLJEWITSCH	
	Nonsense Syl.	Nonsense Syl.	Poetry
5 minutes	—	98	100
20 minutes	58	89	96
1 hour	44	71	78
8 hours	—	47	58
8.8 hours	36	—	—
24 hours	34	68	79
2 days	28	61	67
6 days	25	49	42
14 days	—	41	30
30 days	—	20	24
31 days	21	—	—
120 days	—	3	?

be mentioned is the relatively greater amount of retention of sense material.

An experiment performed by Strong,¹ in which a somewhat different method was employed, yielded results very similar to those which have already been mentioned. The curves showing the results of the four investigations are given below, Fig. XVI.

To reach the maximum of effectiveness, any series of appeals ought to be distributed in accordance with the curve of forgetting rather than following any regular intervals of time. This is true not only of advertisements as they appear in newspapers, magazines, and the like, but would hold also for follow-up letters. Instead of presenting the appeals, whatever their nature, a week apart, or a fortnight apart, or a month apart, very much shorter initial periods should be used.

Another element of some importance in any study of memory is the relative memorability of different kinds of objects. It is important not only from the standpoint of advertising, but from the legal standpoint as

¹ Strong, *Psy. Rev.*, Vol. 20, pages 339-372.

well in determining the reliability of witnesses. Many experiments have been carried on to test this point and, though there are certain disagreements, certain common elements stand out beyond doubt. "In general, persons and their acts, things and spatial relations are reported

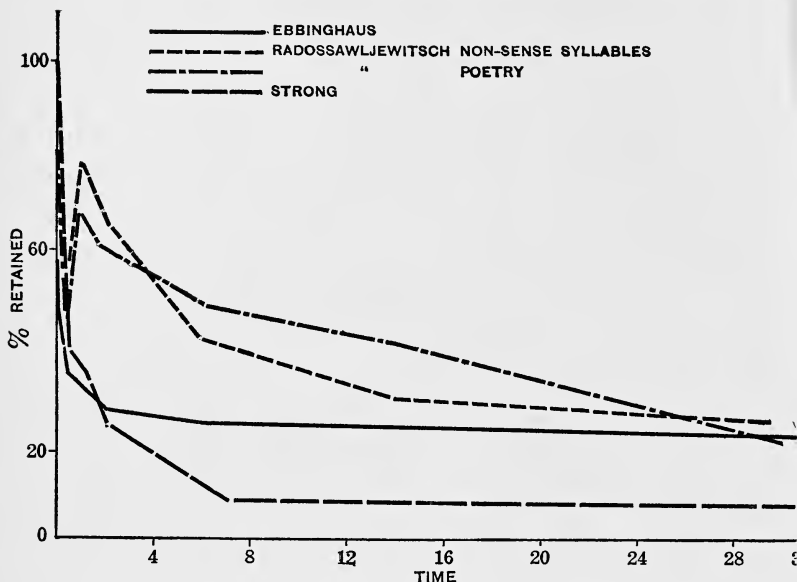


FIG. XVI. — These curves show the results of four experiments on the rate of forgetting. The amount retained is given in percentages on the perpendicular line, the elapsed time on the horizontal.

with a good deal of accuracy, but incidental features, especially the qualities of objects and their colors, are not accurately reported.”¹

Compare this statement with the results obtained by Dallenbach² upon memory for geometrical figures.

¹ Colvin, "The Learning Process," page 186.

² Dallenbach, *Psy. Rev.*, Vol. 20, pages 334-335.

He found the following degrees of accuracy with reference to the different possibilities :

Shape	92.9
Size	86.5
Position	64.4
Color	56.2

The colors showed an interesting variation among themselves, yellow being the most accurately recalled. The order for the colors, together with their accuracy of recall, is given in the following table :

Yellow	92.7
Red	91.7
Violet	89.1
Blue	86.2
Light green	84.2
Orange	82.1
Blue-green	74.3

SUMMARY

Many scattered and isolated facts concerning memory have been brought out which have some application to advertising. In general, it may be said that three things concerning the objects used in the advertisement should be kept in mind. In the first place, not all facts or objects have an equal chance of being remembered. Consequently, those things which have a relatively high memory value should be employed. In the second place, the way in which the object is experienced determines its memorability, for the way in which it is presented determines the type of change which is made in the nervous system. Certain ways of presenting the same material, consequently, are much more effective than certain other ways. Repeating the same advertisement, time after time, will give increased memory value ; increasing the size of the advertisement will still further improve the memory value ; and presenting the

same appeal in different ways on successive occasions is still more effective. A rhythmic form of presentation is preferable to one which is non-rhythmic. In the third place, any fact which is once known will, in course of time, be forgotten. It is therefore necessary that the public be reminded from time to time.

CHAPTER XIII

THE APPEARANCE OF ADVERTISEMENTS

IN the foregoing discussions, emphasis has been laid throughout on the various ways of giving information in such a manner that it will be retained. This is known technically as the cognitive or knowing side of consciousness. In addition, it is necessary to discuss the feeling or emotional side of our mental life as this is related to advertising. It must be done for three reasons: first, because the pleasantness or unpleasantness of the advertisement becomes linked by association with the commodity which is advertised; secondly, because there is apparently some relation between the pleasantness of a stimulus and favorable action towards the stimulus; and, thirdly, because there is a definite relation between the pleasantness of a stimulus and the length of time it will hold attention. It is not necessary at this point to go into the cause and effect relations existing between feeling and action. It is enough to show that there apparently is some relation.

Any sensation may be pleasant, unpleasant, or indifferent. Sweet is usually pleasant, though just after Christmas it is quite generally unpleasant, and at other times may be indifferent. The complex made up of a sensation and pleasantness is called a feeling. Likewise a sensation which is unpleasant is called a feeling. An indifferent sensation is not a feeling at all, but just a sensation. Since pleasantness and unpleasantness are independent variables which may attach to any

sensation, it is possible to abstract them from the total experience. This abstraction, which refers merely to the pleasantness or unpleasantness of a sensation, is called affection or affective tone. The sensation can exist without the affective tone, but the affective tone cannot exist without the sensation. The sensation is a relatively permanent affair, whereas the affection is constantly fluctuating.

Since the affection depends in some way upon the sensation, it may be said that the affection varies with the attributes of the sensation. It will be remembered that there are four attributes of sensation, quality, intensity, extensity, and duration. Since advertising is so largely a visual matter, depending primarily upon color, brightness, and form, these factors will be taken up in connection with the attributes of the sensations.

In the first place, it may be said that the pleasantness of a color varies with the quality or color tone. A very large amount of experimental work has been done upon this point, and the results are quite chaotic, showing that the liking for a color depends upon a very great many different factors, such as sex, age, nationality, training, the background upon which the color is shown, the size of the color, the shape, the area, and the period of time for which it is seen. Another difficulty in the way of investigating color preference is the lack of properly standardized color names.

Possibly the most thorough study of color preference from the standpoint of the number of persons investigated was made by Jastrow¹ at the World's Fair in Chicago in 1893, in which he obtained results from 4500 individuals, three fifths of whom were men and the remainder women. The colors used were of the Prang series and were rectangular in shape. The size, however, is not given, nor is the background mentioned. The

¹ Jastrow, *Popular Science Monthly*, 1897, page 361 ff.

following colors were used: red, red-orange, orange, orange-yellow, yellow, yellow-green, green, blue-green, blue, blue-violet, violet, and violet-red, together with the tint of each. As a result of the experiment, Jastrow found that the first place for single colors was held by blue. Second, and a rather poor second at that, was red. Following these came in order light blue, blue-violet, red-violet, and light red-violet. The colors rather than the tints were quite generally chosen. Also, there was an unmistakable tendency to prefer the primary colors rather than the transitional ones.

Miss Washburn¹ studied the color preference of 35 Vassar students by means of colors 2.9 cm. square presented on a white background. Colors of the Bradley series were used. Her results are as follows, for the saturated colors:

COLOR	VALUE
Red	5.6
Green-blue	5.3
Orange-red	4.5
Violet	4.4
Orange-yellow & Blue-violet	4.0
Violet-blue & Blue	3.8
Red-violet	3.6
Yellow-orange & Blue-green	3.4
Yellow	3.3
Red-violet & Green	3.0
Orange & Yellow-green	2.6
Green-yellow	2.1

The most pleasing color was given a value of seven, the least pleasing a value of one, and a color which was indifferent was credited with four points. Pure red proved to be the most pleasing saturated color for the women, with greenish-blue next. Pure blue comes fairly low in the series. Yellow, green, and yellowish-greens were disliked.

¹ Washburn, *Amer. Journ. of Psychol.*, Vol. 22, page 114.

In Miss Washburn's experiment tints and shades were also used. She found that the affective value of tints was the highest, with an average of 4.7; the shades coming second, with an average of 4.1; while the saturated colors were the lowest, with an average of 3.6. Blue was the pleasantest light tint and yellowish-green was the pleasantest dark shade, with blue coming next.

An experiment performed upon 30 students at the University of Michigan, in which squares of red, orange, yellow, green, blue, and violet of the Bradley series 1.5 inches on a side were shown on a white background, resulted in the following order of merit:

COLOR	POSITION
Red	3
Orange	4
Yellow	5.5
Green	2
Blue	1
Violet	5.5

Several experiments have been made with the colors displayed on a black background. Wissler¹ used rectangles of color, 5 × 3 cm., displayed on a black background. His results, in percentages, are given:

COLOR	MEN		WOMEN	
	Like	Dislike	Like	Dislike
	%	%	%	%
Red	22	7	42	8
Orange	5	25	8	31
Yellow	2	32	5	8
Green	7	15	9	21
Blue	42	12	19	23
Violet	19	8	19	9
White	3	1	8	0

¹ Wissler, *Psychol. Rev. Mon. Supple.*, Vol. 3, 17.

Red, blue, and violet are the colors which have the highest preference values under these conditions.

In the experiment referred to above as having been done at the University of Michigan, the following order of merit was obtained on the black background.

COLOR	POSITION
Red	5
Orange	2
Yellow	1
Green	4
Blue	3
Violet	6

These results indicate that yellow, orange, and blue are the most satisfactory colors to use on a black background.

Enough evidence has been given to show the chaotic condition of the work upon color preference. An attempt at harmonization is beyond the province of this work. It seems probable, however, that as a general rule, it is possible to say that blue and red are the two colors which are accepted by the majority as being the most pleasing under average conditions. So many factors come in to effect the pleasingness of the colors, however, that this is about as much as can be said. The influence of these factors will now be discussed.

1. *Effect of Background.*— Since in the experiments quoted above different subjects were used in the different investigations, it is unfair to compare the results of one experiment with those of another. In the experiment performed at the University of Michigan the same persons were used throughout, so a comparison of their results is possible. Three backgrounds were used, black, white, and middle gray, a gray which was approximately halfway between the black and the white. The order of merit for the different colors on

the three backgrounds is presented in the accompanying table:

COLOR	WHITE	GRAY	BLACK
Red	3	5	5
Orange	4	6	2
Yellow	5.5	4	1
Green	2	3	4
Blue	1	2	3
Violet	5.5	1	6

These results show that the background upon which the color is displayed has a considerable effect upon the affective tone of the color. We have to deal here with the question of color harmony rather than with the question of color preference. The results of the test go to show that if a small color is displayed on a large white background, blue is the most pleasing, with green and red following, and that the colors which produce the worst impression are yellow and violet. On the gray background, the order of preference is practically the spectral order, starting with the violet. On the black background, yellow is the favorite, followed by orange and then by blue. Violet and red are the least pleasant.

2. *Sex Differences.* — It seems to hold in the majority of tests which have been made that the masculine tendency is to prefer blue for the first choice and red for the second, whereas the women place red first and blue second. This was the result obtained by Jastrow, and the results of Miss Washburn's experiments in which all of the subjects were women showed red to have the first place for the saturated colors. The results of the test carried on at the University of Michigan will be given for purposes of comparison.

COLOR	BACKGROUND						AVERAGE	
	White		Gray		Black			
	<i>Men</i>	<i>Women</i>	<i>Men</i>	<i>Women</i>	<i>Men</i>	<i>Women</i>	<i>Men</i>	<i>Women</i>
Red . . .	2.75	3.61	3.58	3.78	3.25	4.28	3.20	3.90
Orange . .	3.33	4.67	3.33	4.28	3.58	2.83	3.42	3.93
Yellow . .	5.00	3.89	3.25	3.83	2.83	2.67	3.70	3.46
Green . .	3.42	2.44	3.75	3.22	3.83	3.33	3.66	3.00
Blue . .	2.75	1.67	3.75	2.94	3.58	3.44	3.36	2.68
Violet . .	3.75	4.72	3.42	2.94	4.00	4.44	3.72	4.05

These results show the following average order of preference for the two sexes :

COLOR	MALE	FEMALE
Red	1	4
Orange	3	5
Yellow	5	3
Green	4	2
Blue	2	1
Violet	6	6

These results because they are derived from so few subjects are not to be taken too seriously. They are suggestive rather than final.

Another sex difference which appears from the preceding tables is that women are surer of their color preference than the men. The extreme range of averages for the men is from 3.20 to 3.72, a difference of only 0.52. The women's range is from 2.68 to 4.05, a difference of 1.37, almost three times that of the men.

A still further sex difference which was brought out by Jastrow and by other investigators as well is that women generally prefer the tints of colors, whereas men prefer either the saturated colors or the shades.

3. *Age Differences.* — Tests which have been made on very young children indicate that the brightest color is the one which is first reached for. The color tone is a matter of relative indifference; the brightness of the color is the important consideration. Jastrow, whose 4500 subjects ranged from the ages of six or eight to over seventy, found that blue was the least selected by the youngest group made up of those eighteen years of age or under, was on about an equal footing with the other colors with individuals between eighteen and forty-one, and was decidedly preferred by those who were past forty-one. The lighter red was particularly preferred by those under eighteen years of age.

Winch, who investigated the color preference of 2000 school children in London, found the following order for both boys and girls: blue; red; then yellow, which was placed lower as age and intelligence increased; green, which rose higher with increasing age and intelligence; white, and finally black.

In general, it may be said that in youth the preference is for colors at or near the red end of the spectrum and that with advancing age the preference tends to swing towards the blue end of the spectrum.

4. *Culture Differences.* — Grant Allen, by means of questions put to returned missionaries, found that the colors were preferred in the following order by savages:

1. Red
2. Yellow
3. Orange
4. Blue
5. Green

This order correlates fairly definitely with the order determined by the color words in the vocabularies of tribes inhabiting certain of the islands in the Pacific. Neighboring islands present queer anomalies, for in one there are found only the words for red and orange,

whereas in another only a few miles distant, the natives have names for red, orange, and yellow.

Havelock Ellis,¹ in a comparative study of literature, has suggested that before the Christian era, red and yellow in their various shades were the colors most preferred. After the beginning of the Christian era, yellow fell into disrepute, and blue was substituted for it in the popular taste. The liking for green is of comparatively recent date, since the use of that color word does not appear extensively in literature until political exigencies had forced the Englishmen to forsake the corruption of court life and betake themselves to the country, where the pleasantness of the life became associated with the predominant color of the vegetation, green.

Taking all of the evidence into account, it seems probable that savages, backward or uneducated races and people tend to prefer the red end of the spectrum and to regard with less favor the colors towards the blue end.

5. *Effect of the Size of the Color.* — To test this point, the investigators² compared the affective value of two sets of cards with 23 subjects, all of whom were women. Two sets of cards were prepared, one being 5 cm. square, the other 25 cm. square. Saturated red, orange, yellow, green, blue, and violet, together with the lighter tint and the darker shade of each, were used. The cards were suspended in mid-air about 5 feet from a gray wall. This was done to lessen the effect of the background. It was found that of the saturated colors, red was preferred with the larger area, and that all of the other colors were preferred in the smaller area. With tints,

¹ "The Psychology of Red," *Pop. Sci. Mo.*, 57, page 365. "The Psychology of Yellow," *Pop. Sci. Mo.*, 68, page 463. "The Color Sense in Literature," *Contemp. Rev.*, 1896, pages 714 ff.

² Clark, Goodell, and Washburn, *Am. Jour. of Psychol.*, 22, pages 578-579.

the larger area was slightly preferred; and with shades, the larger area was also preferred, the preference being least in the case of green and violet. The moral is, that the observer can be pleased by large areas where the color tone is reduced in saturation, but where the color is really condensed as it is in the case of a saturated color, large areas are likely to become distressing, to say nothing of overpowering.

6. *Effect of the Duration of the Stimulus.* — In the experiment¹ by means of which this point was tested, squares of color, 2.9 cm. \times 2.9 cm., were shown to 14 female subjects. The same colors were used as in the preceding test. The subjects were told to look steadily at the color for a period of one minute, recording any changes of affective tone which were observed during that interval. It was found that some fluctuation of the affective tone usually did occur. These changes were of two sorts: those resulting from changes in the color itself which were brought about by adaptation, thus making the color appear to be less pure; and secondly, changes owing to associations which arose in connection with the color. It was found that changes owing to the first cause were much more numerous in the case of the saturated colors than with the shades or tints. Numerically, the saturated colors suffered change because of adaptation 133 times, the shades underwent a corresponding change 93 times, and the tints 70. Changes of the second sort, due to purely mental causes, changed the affective tone of the tints most, the shades next, and the saturated colors least of all, the numerical values being 70, 59, and 53 respectively. In general, it was found that changes due to mental causes, such as the arousal of associated ideas, tended to raise the affective tone of the color, while changes of the opposite sort, due to changes in the color itself, tended

¹ Crawford and Washburn, *Am. Jour. of Psychol.*, 22, pages 579-582.

to decrease the affective value. It was found that for saturated colors, associations had little influence. What there was proved to be of a favorable nature. Adaptation was favorable to green, blue, and violet, and unfavorable to red and yellow. With the shades, changes due to mental causes had a favorable effect on red, orange, green, and violet, but had little effect upon blue or yellow. With tints, associations were favorable without exception, and adaptation was on the whole unfavorable.

The reasons for preferring one color to another have been mentioned by Bullough.¹ He found that his observers fell into four types. The first he called the objective. It was composed of those who based their æsthetic judgment upon a physical characteristic of the color, such as its saturation, brightness, delicacy, or poorness of color. The second type was the associative, for whom the color called up thoughts of flowers, sunsets, trees, the sea, and the like. The third type was the physiological, including those who reacted to the color in terms of its warmth, restfulness, coolness, or softness. The fourth class was composed of those who read character into the colors, considering them as insipid, treacherous, or jovial.

In connection with the last point, it has been found that for many persons each color has a distinct character. These have been brought out in some detail by Bullough.

Red. — "The character of a red or a tone tinged with red is usually of a sympathetic, affectionate kind; it appears to come to you with openness and frankness. Red is by far the most active color, exhibiting degrees of energy which are almost overwhelming; it is gushing. It is impressive by reason of its irresistible strength and power."

Yellow. — "Yellow has a temperament utterly unlike

¹ Bullough, *British Journal of Psychology*, 2, page 407.

red. Its essence is cheerfulness and lightness of heart. It is almost fidgety compared with the deep elemental restlessness of red, and sparkling with life compared to the contemplative seriousness of blue. There is little of the massive strength of red, though a good deal of its sympathetic brightness, and none of the taciturn reserve of blue. Yellow is happiness, sunshine, and fun; it is almost impossible to take it seriously; even when it tries to appear serious and deepens into gold, it retains too much of its glorious radiance to be really grand and majestic. It may be splendid, brilliant, but its splendor is after all merely on the surface and a faint suspicion of shallowness is very apt to linger in the mind."

Orange. — "Combined with red into orange, yellow loses some of its light spontaneousness by contact with the greater power of red, but robs the red of a part of its unbridled impetuousness; even the natural frankness of the red seems to suffer to some extent by mixture with yellow. If this combination produces one of the most magnificently brilliant tones, of almost unrivalled intensity, warmth, and life, yet the fusion of the temperamental differences is apt to produce a note of discord, which certainly makes the color all the more interesting by increasing the complexity of its temperament, yet seems to suggest to many persons a kind of duplicity, even of treachery or stealthiness. On the whole, orange is not an intimate color; its attraction lies more in its magnificence than in its more inward qualities."

Green. — "Green possesses solidity of character, sometimes even to the verge of pedantry and the *bourgeois*. As distinguished from red, its fundamental quality is restfulness; as opposed to blue, it is expansive and jovial instead of cold and reserved. It is essentially healthy without a bit of morbidness. At the same time, it is one of the most fluctuating and variable colors

from the point of view of the character aspect, which seems to be due to the fact that a pure green is very rarely met with, and that the faintest admixture of yellow or blue influences its tone in a much higher degree than that of other colors. The various degrees of luminosity also affect its temperament much more than they do in other tones. In an absolutely pure, saturated green, as in the spectrum, there is hardly any trace of pedantry left; even its solidity and placidness are very largely lost in the luminous richness of its tone. Such a green may show a degree of refinement which is as a rule not characteristic of greens as a class. As a whole they are healthy, expansive, good-natured, and very reposeful. Mixed with yellow, however little, green is apt to lose its soundness of character and easily appears sickly, unreliable, and treacherous. The addition of some blue at once adds some reserve and refinement to its healthy-mindedness; it checks its joviality, increases its reflectiveness, and strengthens its purpose."

Blue. — "Blues are reserved, even unaccessible of temperament, somewhat like individuals described as difficult to know. This temperament is by no means repellent; on the contrary, it has an attraction of its own, by the promise of more thoughtfulness and greater depth than red in its expressiveness seems to offer. Blue tends to contemplation and reflection. In blue there is always some measure of coldness and distant state. It has something monumental in its dignified repose and its peculiar spaciousness."

Purples. — "Their fascination lies largely in their strange combination of temperamental contrasts peculiar to the components, red and blue. Still more than orange, purple is a self-contradiction, but without the element of duplicity or untrustworthiness inherent in compounds of yellow. This internal antagonism places it in a very marked contrast to green, and purples in-

cline, in opposition to green and its healthy-mindedness, to some degree of morbidness or at least sadness and melancholy. This note is especially pronounced in blue-purples, when the predominance of blue tends to lower the luminosity and accentuate the element of pensiveness, self-contemplation, and severity. If the luminosity is very high, the thinness of the tone imparts to the color a particularly marked morbid sentimentality, though always with the quality of almost fastidious refinement and feminine delicacy. A pale blue-purple is a distinctly mystic color; a fully saturated blue-purple possesses a degree of stateliness and depth, which, combined with the somewhat abnormal, many-faceted temperament, produces the impression of a mysterious, not easily fathomed personality. The red-purple exhibits the same complexities of character, but the prevalence of the red element gives it considerably more frankness, impulsiveness, and sympathy. Red-purple is, perhaps, from this point of view, the most fascinating of all colors: especially if fully saturated, there is unlimited strength in it, not the irresistible dash of red, but an energy controlled and spirit realized by the thoughtfulness and sensibility of the blue; there is all the affectionate impetuosity of the one, coupled with the reserved inwardness of the other."

The next problem is that of pleasing harmonies of two colors. Jastrow, in the tests conducted at the World's Fair, found that there was no combination of colors which occupied the position of a decided favorite as did blue among the single colors. The two most frequently preferred combinations were red and violet, and red and blue. Third came blue and violet. Then followed light red and light green, red and green, light red and light blue, and red and light green. The most generally avoided were orange and green, orange and violet, and light orange and light blue. The tints of the

colors appear relatively more frequently in the color combinations than in the single color preferences, and this in particular is the case for the women.

A somewhat more painstaking investigation on the problem was carried out at the University of Toronto.¹ The general method used was to expose the colors, which were 83 mm. by 33.5 mm., upon a table covered with black velvet. Each color was placed beside all of the others in turn, and the subject asked to pick out those combinations which were found to be pleasant, together with the most pleasant one of the whole series. The work was divided into several parts: the combinations of saturated colors with saturated colors; of saturated colors with tints; of saturated colors with shades; of tints with tints; of shades with shades; of tints with shades; and of shades with tints. The results will be taken up under these separate headings.

1. *Combinations of Saturated Colors with Saturated Colors.*

In the table given below, each color is given in the left-hand column. In the next three columns in order will be shown the color which makes the best combination with it, the second best combination, and the third best combination.

It was found that the results could be grouped into four broadly marked classes: (1) those in which the maximum of agreeableness occurred at or extremely near the complementary, (2) those in which the most agreeable combinations occurred near the complementary, but in which the complementary itself stood low in the affective scale, (3) those in which there were decided maxima on both sides of the complementary, while the complementary itself was low, and (4) those in which the most agreeable combination did not occur at or near the complementary.

¹ University of Toronto Studies, Psychological Series, Vols. I and II.

COLOR	BEST COMBINATION	SECOND BEST	THIRD BEST
Red	Green blue green	Y. Y. G.	Y. G.
R. R. O.	G. B. G.	Y. Y. G.	Y. G.
R. O.	G. B. G.	Y. Y. G.	B.
O. R. O.	V. R. V.	B.	G. Y. G.
O.	V. R. V.	B.	B. B. V.
O. Y. O.	B.	G. B. G.	V. R. V.
Y. O.	B.	G. B. G.	B. B. V.
Y. Y. O.	B.	V. R. V.	V.
Y.	V. R. V.	G. B. G.	B.
Y. Y. G.	V. R. V.	B. B. V.	B.
Y. G.	V. R. V.	R. R. V.	R. V.
G. Y. G.	R.	R. V.	R. R. V.
G.	Y.	R.	R. R. V.
G. B. G.	R.	Y.	R. O.
B. G.	Y.	Y. Y. O.	R.
B. B. G.	Y.	Y. Y. O.	Y. Y. G.
B.	Y. Y. O.	Y.	Y. Y. G.
B. B. V.	Y. Y. O.	Y. Y. G.	Y.
B. V.	Y.	Y. Y. G.	Y. Y. O.
V. B. V.	Y. Y. G.	Y. Y. O.	Y.
V.	Y. Y. G.	Y. Y. O.	Y.
V. R. V.	Y. Y. G.	Y.	Y. Y. O.
R. V.	Y. Y. G.	Y. Y. G.	G. Y. G.
R. R. V.	Y. G.	G. B. G.	Y. Y. O. ¹

2. *Combinations of Tints and Saturated Colors.*

The results of this investigation are summarized in the following table:

TINTS	HARMONIZE BEST WITH	HARMONIZE WITH	DO NOT HARMONIZE WITH
Red	Yellow-green	Violet-purple	Blue and violet
Orange	Green	Themselves	Blue
Yellow	Themselves	Yellow-green	Blue
Yellow-green	Themselves	Yellow-green	Blue
Green	Red	Themselves	Orange, Blue
Blue	Themselves	Their neighbors	Green, Red
Violet	Themselves	Yellow	Red, Blue
Purple	Themselves	Yellow	Red, Violet

¹ The letters refer to the abbreviations used to designate the colors in the Prang series. R = red. R. R. O. = red red orange, meaning that

This table shows that the yellow, blue, violet, and purple tints harmonize best with the saturated color of the same tone, whereas red and green tints do not, but make the most pleasing combinations with different saturated tones.

3. *Combinations of Shades and Saturated Colors.*

The results are again summarized in the form of a table:

SHADES	BEST COMBINATION	SECOND BEST	THIRD BEST
Red	Yellow-green	Orange	Yellow
Orange	Orange	Red	Blue-green
Yellow	Purple	Blue	Yellow-green
Yellow-green	Yellow-green	Blue-green	Red
Green	Orange-yellow	Purple	
Blue-green	Purple	Blue-green	Red
Blue	Yellow	Blue-green	Yellow-green
Violet	Violet	Purple	Yellow
Purple	Yellow-green	Yellow	Purple

4. *Combinations of Shades with Shades.*

SHADE	HARMONIZE BEST WITH	HARMONIZE WITH	DO NOT HARMONIZE WITH
R.	YG.	R.	V. P. OR. B.
O.	YG.	O.	V. P. B. Y.
Y.	YG. BG. R.	B. P.	V. Y.
YG.	R.	B. Y. BG.	V.
BG.	R. Y. YG.	BG.	V.
B.	Y. G.	R.	V. P. O.
V.	YG. Y.	BG. R. P.	B. V. P.
P.	YG. BG.	R.	RP. O. V. B.

the color is red with just a little orange in it. The other colors are designated in the same way. A color used as a noun means a greater amount of the color; as an adjective, a lesser amount of the color.

5. *Combinations of Tints with Tints.*

TINT	HARMONIZE BEST WITH	HARMONIZE WITH	DO NOT HARMONIZE WITH
R.	YG.	O. Y.	P. V. B. R.
O.	G. YG. BG.	R. V.	P. B. O.
Y.	G. R.	B. V.	Y. P.
YG.	R.	V. O.	YG. B.
BG.	P. O. Y.	B. V.	BG.
B.	Y.	G.	B. V. P. R.
V.	Y. YG. BG.	P.	R. B. V.
P.	BG. YG. O.	Y. V.	R. P.

6. *Combinations of Shades with Tints.*

SHADE	HARMONIZE BEST WITH	HARMONIZE WITH	DO NOT HARMONIZE WITH
R.	BG. YG.	O. Y.	V. B. P.
O.	G.	O.	V. B. P. R.
Y.	G.	R. O. Y.	V.
YG.	YG.	O.	BG.
BG.	G.	B.	R.
B.	YG. B.	O.	V. R.
V.	YG.	V. O.	B.
P.	G.	OY. R.	B. V. P.

7. *Combinations of Tints with Shades.*

TINT	HARMONIZE BEST WITH	HARMONIZE WITH	DO NOT HARMONIZE WITH
R.	YG.	Y. R.	V. P. B.
O.	YG.	R.	V. B.
Y.	BG.	YG. P. R. O. Y.	V.
YG.	YG.	B. P. O.	V.
BG.	YG.	BG. Y. R. P.	V. O.
B.	G. B.	Y.	V. P. R.
V.	YG.	V.	R. O. B.
P.	G.	Y. V.	B. R.

It is almost impossible to draw any general laws from

the tables which have been given, for so many exceptions appear. With the saturated colors the tendency is to find the most pleasing combinations in the direction of the complementaries, usually falling to one side or the other. With shades and tints combined together or with saturated colors, the tendency seems to be for reds and greens to combine well with other color tones, while the yellows and blues harmonize better with different degrees of saturation of themselves and neighboring hues.

In addition to color and combinations of color, geometrical figures, together with their boundary lines, enter into the make-up of an advertisement. It is necessary, then, to discuss the æsthetic value of lines and the combination of lines into figures. Lines differ from each other in color, brightness or value, length, breadth, and direction.

Nothing new need be said of color. Concerning the other qualities of lines, the following general principles may be said to hold:

"A fine gray line suggests delicacy of texture."

"A fine black line suggests precision and hardness."

"A broad rough line suggests homeliness and solidity."

"Broad black lines have a character of distinctness and independence."¹

As illustration of these principles, note the following advertisements. The Tiffany advertisement, with the narrow black lines which make up the border, the narrow-faced type, suggests the hardness and precision which is inseparable from jewelry. The Gorman advertisement, with its broader lines, both in border and in type face, suggests the solidity and weight which are inseparable from table and decorative silver.

The Direction of Lines. — Lines may be classified as horizontal, vertical, diagonal, and curved. These lines obtain their symbolism by the process of association.

¹ Gordon, Kate, "Esthetics," page 160.

The horizontal line, because of its association with solidity, immovability, a low center of gravity, and the like, has come to mean ease, repose, and relaxation.

The verticals, on the other hand, have the opposite meaning of severity, rigor, effort. Because the realization of many of our ideals is accompanied by a considerable amount of strain or effort, the vertical has in a secondary way become associated with the sublime, and with many of the lofty tendencies of man.

Diagonals are the lines of action and movement. Our bodies when active tend to assume diagonal positions, and hence the association of the diagonal with movement is formed.

Curved lines, no matter whether the curve is arc, spiral, serpentine, loop, or anything else, are supposed to be more graceful and pleasing than straight lines. The reason for the greater pleasure which is felt for curved lines has never been satisfactorily explained. The old notion that the pleasure was derived from the ease of eye movement in following the lines was disproved by Stratton.¹ He found that the path which the eye follows when observing a curved line is itself anything but curved. It is generally a succession of straight lines which do not follow at all accurately the outlines of the curve.

Geometrical Forms. — The pleasingness of many figures has been investigated experimentally. The ones which are most frequent in advertising display are triangles, rectangles, circles, and ellipses.

1. The triangle, because it is made up so largely of diagonal lines, is called lively, incisive, yet it is at the same time well balanced. Experiment has shown that the most pleasing triangle, when resting on its base, is the one whose altitude is approximately 1.50 times its base.

¹ Stratton, "*Philos. Studien*," Vol. 20, pages 336-360.

2. Rectangles may be said to begin with the square, and as one side increases and the other decreases, they shade over into the horizontal line in one direction and the vertical in the other. All of the horizontal rectangles partake more or less of the nature of the horizontal line, and the vertical rectangles likewise are similar to the perpendicular line in meaning. The meeting place of these two tendencies appears to be the square, but the square presents an anomaly, for when it is geometrically perfect, it appears to be higher than it is broad. This is due to the tendency to overestimate perpendicular lines. The amount of this illusion is not very great, being approximately 2 per cent.

Certain proportions of rectangles have been found to be much more pleasing than others. Zeising, because of theoretical considerations, and Fechner, on experimental grounds, argued that a rectangle having its sides in the ratio of the golden section, was the most pleasing. The golden section is the division of a line into two parts of such a length that the short part is to the long part as the long part is to the sum of the two parts. This gives a ratio of roughly 1.00 to 1.62, or approximately 5 to 8. The maximum of pleasantness has been found time and time again to lie in the neighborhood of the golden section.

Ellipses. — In the same way that the horizontal and perpendicular rectangles merge into the square on the one hand and the line on the other, the ellipses may be considered to start with the circle and diverge towards the two types of lines, deriving in this way their meaning. The curved lines make the figure more graceful than the more severe rectangle and tend to unify the content in a better manner. Experiments have again indicated that the most pleasing proportions for an ellipse are found when the long axis and the short axis bear approximately the relation of 1.00:1.50 to each other. See the table below:

PROPORTION OF SIDES	PER CENT OF CHOICES	
	Rectangles	Ellipses
1/1	3.05	1.2
6/5	0.35	0.6
5/4	1.54	8.3
4/3	2.66	14.7
29/20	8.60	—
3/2	19.77	42.4
34/21 G. S.	35.17	16.7
23/13	19.31	13.1
2/1	8.09	1.6
5/2	1.56	0.0

Another point which may be of some interest is the harmonization of colors and forms. In the experiment to determine this relationship, the colors red, orange, yellow, green, blue, and violet were shown on a white background in the following forms: circle, square, ellipse, triangle, and rectangle. Fifty-three subjects were used. The results are given in the following table, the figures indicating the average position in the entire series of judgments:

	RED	ORANGE	YELLOW	GREEN	BLUE	VIOLET
Circle . . .	3.1	2.6	2.9	3.6	3.5	2.8
Ellipse-perp. . .	3.8	4.58	4.3	4.8	4.4	4.05
Ellipse-hor. . .	5.33	5.4	5.8	4.98	5.3	5.35
Triangle-up. . .	4.0	3.6	4.0	3.4	3.8	4.2
Triangle-in. . .	4.7	4.52	4.6	4.4	4.8	5.3
Square . . .	4.2	4.3	4.15	4.2	3.7	4.05
Rect.-perp. . .	5.1	5.0	4.18	4.92	5.2	4.9
Rect.-hor. . .	5.32	5.6	5.6	5.4	5.0	5.1

This table shows that all of the colors except green are preferred in circles. Green is liked best in the upright triangle. Considering the shapes, it shows that

if a circle must be used, the best colors to put into it are in order, orange, violet, and yellow. Red and violet are liked better than the other colors in perpendicular ellipses, whereas in the horizontal ellipses, green and blue are slightly preferable. In the upright triangle, green is the most pleasing color, followed by orange and blue. In the inverted triangle, green is the best color, with orange and yellow coming next. The blue square is preferred, though violet and yellow may be substituted. For the perpendicular rectangle, yellow, violet, and green prove to be the most satisfactory colors, whereas for the horizontal rectangle, blue and violet are the most satisfactory.

Having considered the elements which are to go into the advertising space, together with the most pleasing colors and proportions of forms, the next problem which arises is that of their arrangement, for they must be grouped together in such a way that the total impression from the advertisement is pleasing. Again the arrangement is made on analogy with the human body. The body of man is bilaterally symmetrical, and it has been found that any object to appear pleasing must likewise be symmetrical.

Considering first the perpendicular division of the page, made by drawing a straight line down through the middle, certain laws have been determined. Objects of the same size, shape, color, etc., should be equally distant from the mid-line of the page. When this is done, balance is secured. In this case, balance follows the mechanical laws of the lever, equal weights at an equal distance from the fulcrum balancing. But this arrangement is entirely conventional and is likely to prove uninteresting and even unpleasant. So variations are frequently introduced.

If a large mass is to be balanced against a small mass the large mass must be nearer the center of the page and

the smaller more distant. Again the law is that of the mechanical balance or lever, for the middle of the page is still the fulcrum and the greater weight is compensated by a shorter lever arm.

Various other things may be substituted for mass. Certain colors, for example, appear to be heavier than others. Yellow is a light color, and green too seems to be somewhat lighter than red and blue. A suggested action in a particular direction gives the general impression that the action has taken place, at least in part, and there must be a change in the actual position of the figure to compensate for this. A curved line must be placed nearer to or farther from the center as the curve is towards or away from the center. An interesting object is for balance a heavier object and must consequently be placed nearer the center of the page than one which is not so interesting. Lastly, distance, depth, or vista may be substituted for mass, for the smaller object in the background is interpreted as being larger than it appears.

The other division of the page, by means of a horizontal line through the center, gives the relations concerning the stability of the advertisement or picture. To quote from Gordon,¹ "Another phase of the problem of balance is the distribution of masses and space between the upper and lower parts of a composition. An arrangement may be symmetrical on its right and left halves, but wholly unsymmetrical as between upper and lower halves. In general, to prevent top-heaviness and give, as it were, enough ballast to a composition, there should be more below the center than above it. Pierce's experiments show that the principle of stability is even of more moment than that of right-and-left balance. An inverted pyramid would be an unpleasant and precarious-looking structure. The visible sign of a sure

¹ Gordon, Kate, "Esthetics," pages 188-189.

equilibrium is breadth of base, and most massive things are built to slope by more or less obvious degrees toward their tops. It is not true, though, that all beautiful and well-poised forms are larger at the bottom; very good effects are sometimes secured by putting the mass of the thing represented near the upper limit of the picture. A mass of graceful flowers may fill the upper part with only their slender stalks below; a drift of clouds or a flock of birds may be shown high up in the picture, with only a few landscape lines below, the nearest approach to empty space. Why do not such pictures look as top-heavy and unstable as the inverted pyramid?


"The reason is that they represent things that are not dead, inanimate weights, but are delicate and light. Placing the flowers or clouds or birds above the center of the picture, with the empty space below, is just what suits their character, and brings out their lightness and buoyancy. These two facts, then, are part of the same truth: to gain stability, large masses must be below the center, and this is appropriate when the masses are supposed to be heavy; to gain freedom and buoyancy, masses may lie above the center, and this is appropriate when the masses represent something light."

Another element in many, if not most, successful advertisements is the picture. A good deal has already been written concerning pictures, but little concerning their æsthetic value. If but one picture is used, it should follow the laws of symmetry and balance which have been given above. If two are used, they should be placed in such a position as to balance each other. It is practically impossible to determine what the subject of the picture should be. At least, it should be relevant, connected in some way with the commodity or the use of the commodity. It should also be pleasing in its general tone. Colored pictures have a higher attention value than uncolored ones, and they also cost

more. However, by the use of colors, it is possible to portray the article much more adequately and accurately. Some of the general principles of illustrations may be brought out in the account of an experiment which was performed to test the effect of illustrations. Soap advertisements were used throughout, for it was desirable to use but one kind of commodity. Sixteen full-page advertisements of various kinds of soap were selected and arranged in order of merit by 50 subjects, half of them being men and half women, in terms of the pleasantness of the illustration. The two best advertisements and the worst, from this standpoint, will be considered in some detail.

The accompanying advertisement, Fig. XVII, proved to be the most pleasing in the estimation of the 50 subjects who were experimented upon. In the first place, the figure of the young girl catches the attention through its simplicity. It stands out strongly enough to attract attention and yet is not too sharply defined. Next, and more important, it holds attention through its interest incentives: it is pleasing to look upon, we do not tire of it, we like to study it. It is in the proper part of the page, the upper corner of the outside, for this happened to be a right-hand page. The advertisement is rather complex — always necessary to sustained attention — and the picture is relevant. The fluffiness of the girl's hair, her clear skin, her dainty white garments, all suggest cleanliness. This in turn calls to mind "soap." The entire feeling tone is pleasant, thus putting the reader in a corresponding mood.

The next advertisement, Fig. XVIII, which was the second choice, presents the universal appeal of food, yet this is simply the atmosphere of the whole advertisement, for there is no food in sight to distract the attention. There is strong suggested activity, the eyes of those in the foreground being turned upon the woman



MOTHER'S lace bodice of days gone by becomes daughter's lace tunic of today. It has survived the years and is as charming now as ever because the rare, old handwork never has been washed with anything but Ivory Soap.

Ivory washes safely the finest, sheerest materials because, in its way, it is just as delicate and pure as they. It contains nothing coarse, nothing harsh, nothing inferior; no impurities, no substitutes, no makeshifts.

Ivory Soap is genuine, through and through; it is pure, high grade soap—nothing else—and therefore entirely harmless to any lace or other delicate fabric that is not injured by water.

IVORY SOAP. . .  . . . 99 $\frac{44}{100}$ % PURE

FIG. XVII.

who is examining the cloth. Her figure, a trifle larger than the others, occupies the best position on the page, the upper right-hand corner, since it is a right-hand page. The soft, broad, gray line binding the cut to the printed matter below encourages the eye to travel from the cut to the print.

The poorest picture of the entire sixteen is shown in Fig. XIX. The hand, sketchily drawn and without character, is but a means of showing the soap. The soap, in turn, is simply a signboard for a great deal of lettering; it is also not a faithful copy of the commodity.

In general, it may be said that the cuts which were ranked high had interest incentives, were pleasing to look at, were well placed, suggested activity, and possessed more or less balance. Without exception, the illustrations were relevant. They were of persons rather than things and occupied at least a quarter of a page.

Those which were ranked low usually had a cut placed where it had poor attention value, were poorly drawn, inappropriate, and had little æsthetic appeal. There was often a lack of unity, no suggested activity, and frequently no background whatever. Borders which separated the cut from the text were very generally disliked.

Both Hollingworth and Strong have pointed out the fact that there are two types of persons with regard to cuts. The liking for pictures in advertisements is perhaps connected in some way with the type of imagery which the person possesses. Should he be of the visual variety, the cut may not come up to his expectations and for that reason be disliked. On the other hand, if the person has little or no visual imagery, but thinks of things not present to the senses in terms of auditory and motor data, a cut is practically indispensable. Strong's results obtained from thirty women on ten soap adver-

tisements show very strikingly the existence of the two types. In the table below, plus and minus indicate that the advertisement was placed respectively above or below the average of both groups by either group A or group B.

	ALL CUT	$\frac{3}{4}$ CUT	$\frac{1}{2}$ CUT	$\frac{1}{4}$ CUT	NO CUT
A . .	- 4.2	+ 0.15	+ 0.3	- 0.4	+ 1.8
B . .	+ 3.1	- 0.30	+ 0.4	+ 0.35	- 1.6 ¹

It will be seen from the table that there is one group which likes cuts and dislikes all-text advertisements. There is another group which shows exactly the reverse tendency. The only place in which both groups show a plus sign, indicating a liking for the advertisements thus constructed, is where the advertisement is half cut and half text.

¹ This table is adapted from the one given by Hollingworth, "Advertising and Selling," page 109.



COPYRIGHT 1915 BY THE PRUETZ & MURPHY CO., CHICAGO

THE hostess whose linens win the admiration of her guests is blessed with something more than good taste. She is twice-blessed in knowing the value of Ivory Soap for keeping delicate fabrics like new.

Fine linen cannot stand the effect of ordinary soaps. Free alkali, unsaponified oil and inferior materials soon discolor and destroy the minute threads and fibers. The only way to wash such pieces safely and beautifully is to use soap that is mild, pure and of the highest grade. That, as you know, is Ivory.

To Wash Fine Linen

Use water that is warm, not hot. If the water is hard, soften with borax. Make a thick lather with Ivory Soap. Do not rub the soap on the fabric. Soak the pieces thoroughly in the lather; then rub the spots gently with the hands, sousing the material up and down in the suds. Rinse in several warm waters until all traces of the soap are gone. Rinse once again in boiling water, followed immediately by a rinsing in as cold water as you can obtain. Hang in the sun, if possible, but do not let the linen dry completely. Iron without sprinkling.

IVORY SOAP...



IT FLOATS

... 99 $\frac{44}{100}$ % PURE

CHAPTER XIV

ACTION

IN the previous chapters we have taken up the various ways in which an individual receives information concerning the events happening in his environment, and how these bits of information persist in the form of memories. This knowledge, however, would be useless to the individual unless it could result in some movement or series of movements which would enable the person to benefit by it. Action is the only part of the entire process which is a biological necessity, for it is primarily by movement that any animal can escape danger and seek those things which are beneficial to it. The only way in which a felt need can be realized or satisfied is through some sort of action. Since advertising is one phase of the environment which gives us information concerning the possible ways of satisfying the different needs which are in the consciousness of the individual, since, consequently, all advertisements depend for their efficiency upon inducing a certain definite kind of action on the part of the reader, it is very essential that action, in many of its phases, should be studied in more or less detail.

The first and fundamental law of action has been called the law of dynamogenesis. It states that any sensation or any idea will result in some kind of movement. It does not state what muscles shall move nor how soon the movement shall take place after a stimulus is given. It contents itself with stating merely that any sensation or

any idea will eventually cause movement of some sort. This law is made necessary by our present day notions of the structure and function of the nervous system. The nervous system, as will be remembered, is composed of elements or cells called neurones. These neurones are connected in series in such a way that they connect the various sense organs with the various muscles. The kinds of connections are very complex, so that any sense organ may be connected with any muscle in the whole body and the course from the sense organ to the muscle may be very roundabout. In the second place, these neurones are capable of conducting nerve impulses in only one direction, viz., from sense organ towards muscle. There is never any running of the nerve current in the opposite direction. Since the nerve current is the result of a stimulation of a sense organ, because the source of the energy is the sense organ, it follows that the nerve current must go in the direction of the muscle. When the nerve current gets to the muscle, it causes a contraction of the fibers and the result is an action. The only differences in action which are found are in the particular muscles which are contracting and the extent to which they contract. It may be concluded, then, that any sensation or any idea, in fact any stimulus, which is received by a sense organ or a sensory region of the brain will result in movement.

These movements are, however, of different sorts. The following classification is frequently given :

1. Automatic movements.
2. Reflex.
3. Instinctive.
4. Habitual.
5. Random or spontaneous.

These five types of movement are the only ones of which the human being is capable. The first three classes are inherited, the fourth is acquired, and the last

A TRIAL CAKE

of
Pears' Soap
(UNSCENTED)

Will be sent
postpaid by us
on receipt of

4^C

in stamps
to cover the
cost of mailing



Everyone knows PEARS—knows it as the world's most famous soap—the soap of refinement for more than a century. We want everyone to *know* PEARS by actual use—to realize fully all the exquisite charm of this delightful soap.

We offer now this opportunity to try PEARS at our expense because we are so sure that the use of this trial cake will form a permanent habit. Once you know the real pleasure of

Pears' Soap

—how refreshing is its absolute purity—how delightfully beneficial its effect on the skin—how matchless for the complexion—PEARS will become as essential a part of your daily life as the bathing itself.

You will be delighted also to learn the economy of PEARS both in its low cost and unusual lasting quality. Pears is all soap—all pure—there is absolutely no waste—it lasts much longer than ordinary soap.

It is the finest soap possible to produce at any price—yet the unscented is sold everywhere at not over 15c a cake.

A. & F. PEARS, Ltd.

*The largest manufacturers of high grade
toilet soaps in the world.*

Do not pass this opportunity to bring the pleasure of PEARS' SOAP into your daily life. Send your address now—enclosing 4c in stamps to WALTER JANVIER, U.S. Agent, 425 Canal St., New York City.

FIG. XIX

is so vague and diffuse that it is difficult to say much about it. However, it is made possible by the inter-connection of the sensory and motor neurones in a very general way.

While it is very difficult to point out any hard and fast lines of division between the various types of actions, certain characteristics have been distinguished. One system of classification takes account of the following characteristics. The automatic movements are those of the internal organs, the activities of which are absolutely essential if life is to go on at all, such as the heartbeat, breathing, the peristaltic motion of the intestines, etc. These actions are supposed to be largely, if not entirely, controlled by the sympathetic nervous system. Since they are of little practical importance for the advertising man as an advertiser, they may be practically omitted from further discussion.

The reflex acts are those responses to relatively simple stimuli which are essential for the welfare of the other structures of the body. Such an act depends upon an inherited pathway in the nervous system. In the case of the reflex, a definite stimulus calls out a definite and relatively fixed response.

The instinctive movement, which also depends upon an inherited pathway in the nervous system, is a relatively complex response to a relatively complex situation. It has sometimes been said that the instinct is nothing but a chain or series of reflex actions that succeed each other in a regular and definite order. All three of these classes of movements appear to be purposive, but could not actually be so, for the action is performed in a relatively adequate way without previous experience.

The habit is different from the instinct mainly in the fact that it represents an actual acquisition on the part of the individual, not being inherited and demanding a considerable amount of training for its perfection.

The random or spontaneous movements are those which result when the stimuli are of such a nature that there is no inherited or acquired pathway over which they may go to certain definite muscles. Since nerve energy is the result of every stimulation, it must get out somewhere, so consequently it overflows to a large number of muscles, causing indefinite and purposeless contractions. These movements are important mainly for the reason that from them many of our habits are developed.

A classification of the same kinds of movements may be placed on another basis, the situation which calls out the movement. It has been stated that every movement is called out either directly or indirectly by some object in the environment, and that most movements have a preservative function. Growing out of the relation between the individual and his environment, there are many constantly occurring situations which demand a comparatively unvarying type of response. Since they happen with such invariability and the movement is so definitely fixed, the movements have been biologically implanted in each individual of each species of vertebrate at least. It would be a mental waste to have them controlled by consciousness, for they are practically mechanical. Under this group may be put the first class named above, the automatic movements, such responses as those involved in digestion, circulation, respiration, and the like.

Certain other movements, those of the reflex type, are called forth by situations which recur with very great frequency, but not so often as the first type. They are, however, produced by situations which occur with very great frequency in the life of each individual in the species. Certain acts of adjustment of a relatively simple nature are necessary to put the individual into greater harmony with his environment. The necessity for these actions is so great and the occasion for them

appears so often that it would be a mental waste to have them controlled by consciousness; we inherit connections in the nervous system which will provide for the movement.

Certain other movements which occur with still less frequency are called instinctive. These are the responses to situations which occur with relative infrequency in the history of the individual and the race, but which still do happen often enough and are important enough to demand a relatively constant type of response before training can step in to handle the situation. For these movements there is developed also in a biological way a path in the nervous system which is capable of causing the movement to take place in response to certain stimulations coming in from the outside world. In each of these three types of movement the response is determined in its character. A stimulus is received and the movement results without thought, a movement which on the average is the correct one under the circumstances.

Sharply opposed to the above types is habit. Habits are developed by individuals to take care of those situations which occur to any given race with relative infrequency, but which confront certain individuals with great regularity. It would obviously be a biological waste to implant instincts in all to meet situations which do not confront all. Habits consequently represent the contribution of each individual to his own welfare.

Random or spontaneous acts result when the individual is confronted with a situation which is met but seldom by any race or by any individual. Should conditions cause the situation to appear often, a habit is developed which is capable of meeting the situation.

Any stimulus coming in from the outside world and affecting a sense organ will, then, produce one or more of these five types of movement. Which kind or kinds

are produced will depend upon the entire individual and racial history of the individual, but some kind will certainly result.

It has been seen that each type of movement is called out by a definite situation or stimulus. This means that for each person there are relatively definite expressive movements which result from the situations which occur any considerable number of times. From this point of view, it may be said that the stimulus determines the kind of response which will be given to it. In process of time the individual has developed habits for meeting most of the practical situations of life, and his attitude towards these situations is determined by the habits which he has developed. The result is that in a familiar situation the action results with little or no definite thought, being rather in terms of habit, or possibly instinct.

Such an action, which takes place immediately and unreflectively upon the presentation of some stimulus, is called either sensori-motor or ideo-motor action; sensori-motor, if in response to an external object, ideo-motor, if in response to an idea. In these cases the stimulus calls out an habitual response. Very many of our daily actions are of this type. We think of going to lunch and immediately the whole process starts. We get up, wash our hands, put on hat and coat, go down stairs or wait for the elevator, go out on the street, walk along turning the customary corners, and so on, the whole process being very complex and all started by the simple idea of lunch. Any other familiar idea which we have will tend to be realized in the same general way. The sight of familiar implements likewise calls out the movements which are habitually made with them.

As a subdivision under sensori-motor and ideo-motor action may be mentioned action in response to suggestion. The only reason for the subdivision is that in action in

response to suggestion, the idea upon which we act is not supplied by our own mental endeavors, but is presented to us from some external source. In the example given above, if we think without any outside influence of going to lunch, we have a case of ideo-motor action. Should somebody ask if it isn't time to go to lunch, or call up to make a luncheon appointment, we have action in response to suggestion. There is no difference in the action which results; the only difference is in the source of the idea. The suggestion is a purely mental affair; the action resulting from it may be called imitation.

Imitation may be considered as the tendency to act, or think, or feel like somebody else. We do not imitate all persons; but we do tend to imitate those who are superior to us in some way, provided that we like that kind of superiority.

Before taking up in detail the applications to advertising, it is necessary to deal with another problem, viz., how it is possible to make a movement at the time that we desire to make it. According to psychological convention, there are at least three processes which must be mentioned as playing a part. These are resident sensations and images, remote sensations and images, and intention. It was pointed out in the chapter on association that when two regions of the brain are active together or in immediate succession, they tend to become associated or connected. Any movement of the voluntary muscles is accompanied or followed by kinæsthetic or muscular sensations. Consequently, the motor region of the brain and the kinæsthetic region are active together, and by the above principle should be connected. The connection is not between any kinæsthetic region and any motor region, but since the particular kind of movement involves a certain definite cortical region and results in certain definite sensations coming from

the muscles which are active, it is these two definite regions of the cortex which become associated. Any nerve current which will in any way get into this particular kinæsthetic region will tend to go over to the motor region connected with it, thereby arousing the movement which originally gave rise to the kinæsthetic sensations which are remembered and recalled. Consequently, one of the ways of initiating a movement is by thinking of how that movement would feel. Once the kinæsthetic images are aroused, the movement will follow unless held in check by some other cause.

These sensations and the ideas which are rearoused from them are called the resident sensations and images.

In addition to the kinæsthetic sensations which accompany a movement, there are usually other sensations simultaneously present, for it is quite possible that the moving member may be seen or heard. When rearoused, these sensations appear in the form of visual and auditory images. These groups are called the remote sensations and images, and they are cues to action for exactly the same reason that the resident sensations and images are. The practically simultaneous action of the motor region of the cortex and the visual region, for example, will cause an association to be formed between them, so that in order to start a movement of any sort, it is only necessary to think of how the movement looks.

Likewise, certain other groups of sensations and images which are even more remote may become the cause of the movement. Anything which habitually is linked up with the movement may be sufficient to start it going. An idea of the result of the movement, the place to which the movement will take one, any idea of that sort which has been constantly associated with the movement is sufficient to start it going, provided always that it is not checked by some other cause.

In order that the movement shall result, however, it

is necessary that one have the intention to move. The intention, or fiat, as it is sometimes called, is nothing more than the mental assent that the movement shall take place. Provided this is present, the movement will result if the remote or resident sensations are present, and if the movement is one which is in the repertoire of the individual.

One of the characteristic situations in which movement does not result is when there is an option of doing two opposed things at the same time. Only one can be done, and it is necessary to choose which of the two shall be carried out. This problem involves the whole mechanism of deliberation and choice. The process may be briefly sketched as follows. It has been noted above that every sensation and idea which we have has a certain tendency to produce movement. This may be called popularly the "motive power" of the sensation or idea. Different ideas will then have different motive powers, one producing slight action and another much more intense or enduring movement. If two opposed ideas of this sort are in consciousness together, the result is obvious; the idea with the greater motive power conquers the other and the resulting movement is in terms of the stronger idea. There is very little thought in connection with the process; it simply solves itself after a short check. Where the two ideas are of more nearly equal strength, however, a much more laborious process results. Each idea calls up many of the possible associates, so that instead of having only one idea on each side, we have a relatively complex group. Each member of the complex group has a motive power of its own, and because of this, each complex may be thought of as possessing a motive power equal to the sum of the motive powers of the ideas which make up the complex. After this process has gone on for some time, one group of ideas will be found to have outweighed the other, and the

action will result in terms of the group having the greatest amount of motive power. We have then decided and the action results.

The factors which control the motive power of the various ideas are those which serve as the conditions of attention. It will be remembered that there were two sorts of these, the objective and the subjective. In the objective group were such conditions as size, intensity, quality, and duration of stimulus. These have a certain influence upon the production of the movement.

The effect of the objective factors of a stimulus in producing action has been clearly worked out by Froeb-berg,¹ who determined the effect of the size, intensity, and duration of stimuli upon the reaction time. The subject was instructed to make a definite movement as soon as he saw the stimulus, and the time between the appearance of the stimulus and the beginning of the movement was measured in units of .001 second, or sigma.

This type of experiment can be applied to advertising, for it represents the condition of those who have made up their minds to buy sometime. The assent to the movement is there, but the movement has not as yet been made. This attitude corresponds quite definitely to that of the subject in the reaction time experiment, for he has agreed mentally to make the movement and awaits only the occasion for doing so.

In determining the effect of the intensity of the stimulus on the time of reaction, Froeb-berg used different shades of gray, starting with white, the intensity of which was called 100. Other grays were found which had, as compared with the white, intensities of 56, 25, 16, and 10. He gives 4 tables, showing a total of 8000 reactions. The results follow:

¹ Froeb-berg, *The Archives of Psychology*, No. 8.

REACTION TIME OF	INTENSITY OF STIMULUS				
	100	56	25	16	10
R	179.0	183.2	186.2	188.6	191.6
W	172.1	176.0	179.1	181.6	184.2
R	191.1	194.2	197.1	201.5	208.0
W	173.4	175.9	180.5	183.4	185.0

These results show very clearly indeed that as the intensity of the stimulus increases, the reaction time decreases. This is shown graphically in Fig. XX. Put

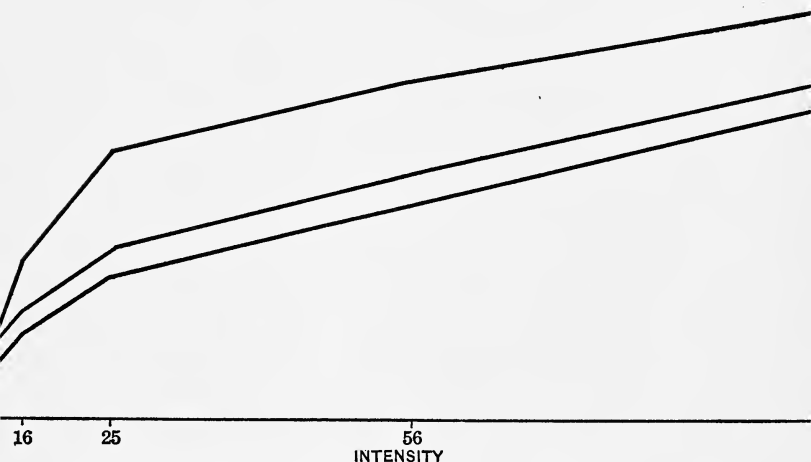


FIG. XX. — Curve showing the decrease in reaction time which results from increasing the intensity of the stimulus.

more definitely, the results indicate that as the time of reaction increases arithmetically, the intensity of the stimulus decreases geometrically.

In determining the effect of the size of the stimulus upon the reaction time, five sizes were used: 48, 24, 12, 6, and 3 mm. square respectively and a total of 5625 reactions made. The results are put in tabular form:

REACTION TIME OF	SIZE OF STIMULUS				
	48	24	12	6	3
R	179.0	181.9	184.2	188.3	194.6
W'	172.1	173.2	170.4	171.7	175.9
H	177.1	181.1	184.2	187.1	193.7
F	162.5	161.7	165.1	169.0	175.4

These results again show that as the stimulus increases in size, the reaction time decreases. Within certain limits, which need not be discussed here, as the stimulus increases in a geometrical progression, the reaction time decreases in an arithmetical progression. This result is in striking harmony with those obtained in the experiments on the attention value of size and the memory value of size. It was found that the two latter tendencies followed a root curve, whereas the action tendency follows a logarithmic curve. The differences found in the reaction experiment are slight, as would be expected, for the subject was instructed to make the movement as soon as he could, and wide variations are therefore very improbable. The interesting and striking fact is that the similarities should be as great as they are.

The tendency is represented graphically in Fig. XXI.

The experiment on the relation between the time of reaction and the duration of the stimulus was performed in much the same way, 5 different durations being used, as follows: 48, 24, 12, 6, and 3 sigma, or thousandths of a second. The results are given below in sigma:

REACTION TIME OF	DURATION OF STIMULUS				
	48	24	12	6	3
R	191.1	193.5	196.4	198.7	200.6
W	173.4	175.2	177.4	179.2	180.7

The results are again shown in curves in Fig. XXII.

If the irregularities are disregarded as being due to extraneous conditions, the same approximate law may

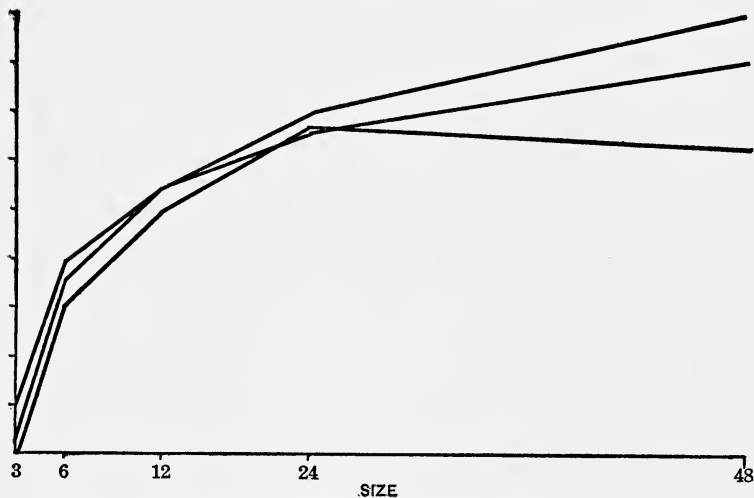


FIG. XXI. — Curves showing the decrease in reaction time which results from increasing the size of the stimulus.

be postulated as in the previous cases; that as the duration of the stimulus increases in geometrical ratio, the time of reaction decreases in arithmetical progression.

The subjective group is far more important, however. In this class we have all of the inherited and acquired interests of the person, the harmony between the present

attitude and the desirability of the movement and the movement judged in terms of what may be called the goal ideal of the person. As the attitude or intention of the person shifts from time to time there will be a corresponding shift in the motive powers of the various ideas which may result in movement.

James gives five methods of deciding or choosing, which will be quoted. "The first method may be called the reasonable type. It is that of those cases in which the arguments for and against a given course seem gradually



FIG. XXII.—Curves showing the decrease in reaction time which results from increasing the duration of the stimulus.

and almost insensibly to settle themselves in the mind and to the end by leaving a clear balance in favor of one alternative, which alternative we then adopt without effort or constraint. . . . The conclusive reason for the decision in these cases usually is the discovery that we can refer the case to a *class* upon which we are accustomed to act unhesitatingly in a certain stereotyped way. . . . The moment we hit upon a conception which lets us apply some principle of action which is a fixed and stable part of our Ego, our state of doubt is at an end. Persons of authority, who have to make many decisions in the day, carry with them a set of heads of classifications,

each bearing its volitional consequence, and under these they seek as far as possible to range each new emergency as it occurs. It is where the emergency belongs to a species without precedent, to which consequently no cut-and-dried maxim will apply, that we feel most at a loss, and are distressed at the indeterminateness of our task. As soon, however, as we see our way to a familiar classification, we are at ease again. . . .

“The ‘reasonable’ character is one who has a store of stable and worthy ends, and who does not decide about any action till he has calmly ascertained whether it be ministerial or detrimental to any one of these. In the next two types of decision, the final fiat comes before the evidence is all ‘in.’ It often happens that no paramount and authoritative reason for either course will come. Either seems a good, and there is no umpire to decide which should yield its place to the other. We grow tired of long hesitation and inconclusiveness, and the hour may come when we feel that even a bad decision is better than no decision at all. Under these conditions it will often happen that some accidental circumstance, supervening at a particular moment upon our mental weariness, will upset the balance in the direction of one of the alternatives, to which we then feel ourselves committed, although an opposite accident at the same time might have produced the opposite result.

“In the second type our feeling is to a great extent that of letting ourselves drift with a certain indifferent acquiescence in a direction accidentally determined *from without*, with the conviction that, after all, we might as well stand by this course as by the other, and that things are in any event sure to turn out sufficiently right.

“In the *third type* the determination seems equally accidental, but comes from within, and not from without. It often happens, when the absence of imperative principles is perplexing and suspense distracting, that we

find ourselves acting, as it were, automatically, and as if by a spontaneous discharge of our nerves, in the direction of one of the horns of the dilemma. But so exciting is this sense of motion after our intolerable pent-up state that we eagerly throw ourselves into it. 'Forward now!' we inwardly cry, 'though the heavens fall.'

"There is a *fourth form* of decision, which often ends deliberations as suddenly as the third form does. It comes when, in consequence of some outer experience or some inexplicable inward change, *we suddenly pass from the easy and careless to the sober and strenuous mood*, or possibly the other way. The whole scale of values of our motives and impulses then undergoes a change like that which a change of the observer's level produces on a view. The most sobering possible agents are objects of grief and fear. When one of these affects us, all 'light fantastic' notions lose their motive power, all solemn ones find theirs multiplied many fold. The consequence is an instant abandonment of the more trivial projects with which we have been dallying, and an instant practical acceptance of the more grim and earnest alternative which till then could not extort our mind's consent. . . . The character abruptly rises to another 'level,' and deliberation comes to an immediate end.

"In the *fifth and final type* of decision, the feeling that the evidence is all in, and that reason has balanced the books, may be either present or absent. But in either case we feel, in deciding, as if we ourselves by our own willful act inclined the beam: in the former case by adding our living efforts to the weight of the logical reason which, taken alone, seems powerless to make the act discharge; in the latter by a kind of creative contribution of something instead of a reason which does a reason's work. The slow dead heave of the will that is felt in these instances makes a class of them altogether different subjectively from all the four preceding classes. If

examined closely, its chief difference appears to be that in these cases the mind at the moment of deciding on the triumphant alternative dropped the other one wholly or nearly out of sight, whereas here both alternatives are steadily held in view, and in the very act of murdering the vanquished possibility the chooser realizes how much in that instant he is making himself lose.”¹

It may be objected that the discussion which has been given of choice is open to objection, for if ideas do produce movement, we ought to do now one of the possibilities and now another. For the thought of doing one thing ought to lead to the doing of that thing and the thought of the other, when it is attended to, in turn, ought to lead to the doing of the other. It is in this situation that the intention to move plays an important part, for as long as we realize that we are still trying to decide, no expressive movement results, but when our minds are made up, the movement results without hesitation. To explain this, it is necessary to call attention again to a principle which was discussed in the chapter on memory. There it was shown that the intention or attitude of the learner towards the material decided whether or not it would be learned. The principle involved was that of the relative resistance of synapses. The same principle may be said to apply here. If the individual is in the deliberating attitude, it will follow that the resistance of the synapses leading to the association regions, the other sensory regions, and so on will be decreased, whereas, under these circumstances, the resistance of the synapses leading to the motor region will be increased. Consequently, the nervous energy will find difficulty in getting to the motor region of the cortex and instigating movement, but will find it easy to wander about in the sensory and association regions, arousing other ideas as it goes. When the attitude of

¹ James, "Principles of Psychology," Vol. II, pages 531-534.

the person changes, owing to the fact that he has decided, and realizes that further thought would be a waste, the relative resistance of the synapses is again changed by the shift in attitude. The pathways leading through the association regions now become relatively blocked and the tracts leading to the motor regions become in turn more pervious. The result is that the nerve current, which has been in the sensory and association regions, arousing ideas of the movement, the results of the movement, and the like, flows over into a definite region of the motor part of the cortex and a movement results, carrying out or expressing the ideas which were in mind at the time.

Several of the other factors which lead to a lack of definite movement when a stimulus is presented to the individual will now be considered. Every voluntary movement is for the accomplishment of some end; it is performed because the person who makes the movement hopes to accomplish by it something that he desires. If the desired end itself is not definitely in mind, the movement will not result. We cannot properly define certain ends, either because they are absolutely unknown, or because there is not enough mental energy resulting from the stimulus to carry the processes on. In the second place, the proper means to accomplish the end may be either unknown or may be known only vaguely. The end may be well defined but we do not know what to do to realize it. Hence there is necessarily a prolonged period of mental activity in search of the proper means. Or again there is a lack of sufficient energy to carry the process to completion. In the third place, means and end may both be well defined and well known, but the means may involve a prolonged period of activity and there is a lack of energy to carry the process to completion. In the fourth place, the end or motive may be too weak to produce a volitional act,

especially when the end is remote or vague. In these cases, the problem is to find some additional energy or motive power to carry the mental activity to completion. The following possibilities have been suggested :

1. In the case of remote and vague ends, or motives, the initial energy resulting from the recognition of the means and ends may be utilized in working out the end in detail or in more vivid imagery. By imagination we place the result concretely in its relationship to life. If we can imagine or get another to imagine some of the possible benefits which will accrue to him from the doing of the required thing, if we can make him see the advantages to himself, we can frequently get him to perform the necessary movements. The initial motive power is sufficient to start the mental process in this direction and it thus continually gathers energy and momentum. This can be done consciously if the person has learned the trick ; likewise it can be practiced on another person if one has learned how to do it.

2. When the first motive is especially weak, one may voluntarily seek for additional motives. The initial energy is sufficient to start the process going, and as it continues it attempts to find the full value of the act in reference to the widest and most complete satisfaction of life. It is a more complete definition of the end. We may look at an act in reference to the future, from every standpoint and aspect, and should one motive be insufficient, we still may value the act from the widest standpoint. It is really getting a broader view of life, a wider philosophy, broader principles of action.

3. When either the end or the means needs defining, or the activity goes over some time, concentration and fixation of attention are essential to the process. Attention to the end makes it more clear and more vivid. But the attention tends to change and hence the process

would stop before the voluntary act was completed unless the attention was kept concentrated on the work in hand. If we ask how we keep our attention concentrated, the answer is that we have to do it voluntarily. But this is explaining will power as voluntary attention, which is nothing but explaining it in terms of itself, for will is voluntary attention.

How do we voluntarily control attention? It is done in this way. We cannot voluntarily concentrate our attention without getting more energy. The voluntary concentration of the attention is attained by a motor adjustment of the sense organs and is accompanied by certain other kinds of movements of both the voluntary and involuntary muscles, of such a kind that it brings back a sensory stimulation. This sensory stimulation releases cortical energy, which is again used in the act. The initial energy is first used in an adjustive movement, not only of the sense organ but also of the whole body, and these movements release a sensory stimulation which produces or releases a greater amount of cortical energy than was at first expended.

We are now in a position to apply the various laws of action to the content of the advertisement. It has been customary to divide the appeals into two types, the long circuit and the short circuit. By the short circuit appeal is meant one which will tap some sensori-motor or ideomotor process and the result will be prompt and unreflective response. When the long circuit appeal is used, however, it is admitted that there are other like commodities on the market, but the advantages of the particular one advertised are indicated in such a way as to swing the preference and eventually the choice in that direction. Either a piling up of new associations or the strengthening of the older ones is the method usually employed.

The short circuit response must necessarily tap either

an instinctive or an habitual situation. The advertisement depending upon this type of appeal must be of an article for which a need is already felt. If the individual has a long-standing and firmly rooted habit of satisfying the need, the short circuit appeal will be very strong. Appeal to the instincts by means of an advertisement must necessarily be much weaker than the actual situation would be, for in the advertisement the situation is only pictured or described. It is received through a distance sense and then only in a modified and weakened form. Consequently, the strength of the response will be correspondingly weakened. The instinctive appeal is a capital means of catching the attention, but it is doubtful if it is as likely to lead to the desired response as the appeal to the more habitual situation.

Some of the devices in common use by advertisers to tap sensori-motor action — and since the cue to the actions comes from some other individual, this must be called action due to suggestion — are especially interesting. Of these devices the ones most frequently met with are the direct command, the return coupon, and the picture of a person using the commodity.

1. The efficiency of the direct command depends upon the authority which lies back of the command. We are willing to take commands from a person who is in a position superior to ours, but not from an inferior. In the business relation, we willingly carry out the orders of those over us, whereas in the sport relation the one who previously commanded us may take our orders and think nothing of it. It all depends upon the relative superiority of the two individuals in the two conditions. However, since the great majority of us have superiors and have consequently developed the habit of obeying, we often obey orders because of this habit and not because of the superiority of the source of them.

It is an easy way of doing things, too, for it saves us the trouble of making up our minds and throws the responsibility upon the one who issues the order. There are, however, two different types of individuals, those who are positively suggestible and those who are negatively suggestible. The former outnumber the latter, though to just what extent cannot be stated definitely. It has been the experience of the writer that of the persons who are experimented upon by him about 7 out of 10 are positively suggestible. The other 30 per cent, when instructed to do a certain thing, usually react in the opposite direction, doing anything in the wide world except that which they were requested to do. There is aroused in them a spirit of antagonism which prevents their coöperation in the task at hand. This fact makes it a somewhat dangerous device to use in advertising, for 30 per cent of the readers and consequently 30 per cent of the possible prospects are repelled by the direct command and refuse to consider the advertisement further. It may, however, be very efficient in inducing the other 70 per cent to action.

By properly wording the command, the spirit of opposition may be removed entirely. Scott¹ says, "Such expression as 'Use Pears' Soap' is not as suggestive as 'Let the Gold Dust twins do your work.' The first is a bald command and as such has a certain value, but the second has the added value of supplying or implying a reason for obedience. It is implied that the Gold Dust twins will save you labor, and so the command is supplemented by an appeal to a personal interest." The addition of persuasion, or, as it is sometimes called, "suasion," to a command in an advertisement will reënforce the action-compelling power.

Four other examples given by Scott in the same chapter are worth considering. They are —

¹ Scott, W. D., "The Theory of Advertising," page 69.

Be an Ad-Writer
Learn to be an Ad-Writer
Learn to Write Advertisements
Advertising Writing Taught

Scott concludes that the first three are superior to the fourth and he undoubtedly is correct in his statement. The last one not only contains no command, but is awkwardly phrased as well. Considering the statements alone and not taking into account the kind of type and the other factors of the display, he slightly prefers the third, for it uses the full word *advertisements* instead of the abbreviation *ad.* which he fears might be misunderstood, or not understood at all. In terms of the end to be accomplished, viz., writing advertisements, they are equally explicit. From this standpoint, possibly the first is superior, for it does not suggest in any way the trouble and endless hours of toil which are necessary before one can qualify as an ad-writer. It carefully omits this, and if it then goes on to show the high salary which such an accomplishment brings, it is especially strong. It reminds one of George Ade's "Fables in Slang." The young woman in the story was very careful to give the young man the freedom of the kitchen, the ice-box, and the pantry, making him feel very comfortable and think how pleasant it would be to have that condition seven days a week. Of course, she kept all notions of expense and the trouble of obtaining provisions carefully in the background. Likewise, the one who answered the first advertisement would know nothing of the trouble involved until after he had enrolled in the course. But nowhere is there a suggestion that he should enroll in any course. He might like to be an ad-writer, but wonders how he may become so. The second and the third headlines both tell him how this may be accomplished. The means to the end are supplied

by the suggestion that he learn to write advertisements. So all he has to do is to write in to the concern and learn how. The writer is inclined to consider that the third one is the best, for the phraseology is much better.

2. The picture of the article in use has a considerable sensori-motor power, and has it for several reasons. In the first place, it suggests that other persons are using the commodity, are deriving satisfaction from it. Because of our imitative tendency, we like to do what other people are doing, especially those of our own class or condition and those who are above us in any way. For this reason, the picture should never be of an inferior person or of a person in a lower class. This brings up the question whether it is better to use a photograph or a drawing of the person using the commodity. Many advertising men will believe that there is no question at all here; that the photograph has its uses and the drawing its uses. Undoubtedly they are correct in the extreme cases, but there is a certain class of commodities which might be illustrated in either way. Considering the first case, it is obvious that if one desires to convey a very exact impression of the actual appearance of the commodity, a photograph will do it much better than a perspective drawing. If, however, the advertiser desires to idealize the commodity somewhat, the drawing is considerably better than the photograph. In connection with the advertisements of men's clothes, for example, the tendency a few years ago was to use photographs, for they showed how the product actually looked as worn by human individuals. In more recent years, since the tendency to extreme attenuation of body to be fashionable has set in, a photograph would obviously be of no use, for it would be impossible to find a living human being whose picture would show the required type of bodily architecture. Consequently, drawings are a

necessity. The endeavor is to create an ideal type which shall conform to the standards of the present fashions, and suggest that the use of the clothes advertised will give the wearer the desired appearance.

Where there is no situation of this sort to be confronted and where either type of illustration might be used, it seems that the photograph should have a slight advantage over the drawing. The reason is that a photograph must be of real persons whereas a drawing need not be, and the result is that we are somewhat more ready to imitate the movements involved in the picture than in the drawing. The following experiment tends to point out the superiority of photographs:

The experiment consisted in showing the subject a series of fourteen advertisements, seven of them containing photographs, the other seven, drawings. After looking the entire list through, the subject was asked to describe each advertisement as carefully and completely as he could. Thirty-nine men and seventy-one women performed the experiment. The results were graded upon five points, two credits being given if the name of the commodity were remembered, one point each for picture, catch phrase, or headline. The results follow:

PHOTOS	GRADES	NON-PHOTOS	GRADES
Ætna	517	Arrow	503
Kodak	507	Vitralite	292
Swift	400	Gold Medal	447
Metro.	370	S. T. Clocks	189
Film-tank	538	Gorham	186
M. Stearn	328	Tiffany	415
R. E. Co.	303	Æolian	179
	2963		2211
	423.3		315.9

The results indicate that photographs are more effective in the advertisements used in the experiment than were drawings. As will be pointed out at a later time, there is apparently a close correlation between the memory value of advertisements and their action-producing powers, so the assertion may be ventured that where the use of a photograph is possible, it will be more effective than a drawing.

The fact that we do tend to imitate the actions of others, or the action suggested by pictures of others, has a definite bearing upon the obtaining of action. The imitation of a movement gives rise to certain kinæsthetic sensations which are produced by the movement. Once these movements have been made, the sensations resulting from them may be rearoused in the form of kinæsthetic images. As was pointed out earlier, these kinæsthetic images are one of the important cues to movement. Given the intention, the movement will result if it is one which is in our repertoire. For the formation of a habit, such kinæsthetic sensations and images are necessary, so it should follow that a picture designed to bring out such an action by imitation would be effective in beginning a campaign. In such a situation, a picture of a person buying the commodity, taking it home, or examining it carefully would possibly be more efficient than one which shows the commodity in actual use. At a later stage of the campaign, when a habit has been developed for the product, a picture of an individual using the commodity may well be employed, for after the habit has been formed, any cue which has been frequently associated with the act is sufficient to bring the action about. So it may be said that a picture showing any part of the buying or using process, or any result of the using, will be an incentive to action. The use of a mere disembodied hand, holding the package or reaching towards the goods, is psychologically poor

from this point of view, for it does not give a sufficient cue for the imitative movements.

Another type of picture which acts by suggestion is the sort which shows the commodity being used by attractive people. Such a picture, in addition to arousing pleasing associations which add charm, luxury, and distinction as connected with the use of the product, furnishes a goal idea which is especially strong with some persons, and the action resulting from the appeal may be towards the realization of the goal.

3. A third means of inducing action by suggestion is by means of the return coupon. The return coupon is valuable for many reasons, some of them psychological, some of them practical. In the first place, the return coupon has a relatively high attention value. It is one of the parts of an advertisement which is often seen and for this reason leads to the observing of things which are close to it. In the second place, the coupon usually contains a direct command, such as "tear out this coupon," or "cut along this line." The influence of the direct command has already been discussed, so there is at present no reason for going into detail upon this point. Sometimes the direct command is reënforced by the suggestions considered under the second point. Devices often employed are pictures which suggest the action, such as a pair of scissors clipping along the line, or of a pen resting on the first dotted line upon which should be put the name of the reader. These two devices, when taken together, should be more effective than either alone, especially if a picture of a person clipping the coupon or signing his name can be used. In the third place, the return coupon is devised to overcome the laziness of the average human being. Most of us are possessed of an inertia which makes us desire to continue any pleasant task and dislike to change to anything else. If we read an advertisement which proves to be especially interest-

ing, we might often reply if paper, ink, and envelopes were at hand. Usually, though, answering the advertisement would involve a considerable amount of activity, getting up and procuring the stationery, writing an entire business letter, and the like. The means to the end are clear, but there is not sufficient energy developed to carry the act through the completion. The return coupon, however, requires a minimum of action on our part. The letter is written for us, the only thing we have to do is to sign our names. Since most of us carry pens or pencils in our pockets, no search for these articles is demanded. Consequently, the relatively slight amount of energy which was aroused by the advertisement is sufficient to carry the slight amount of action to completion.

An experiment carried on by Shryer in the writer's laboratory shows the efficiency of the return coupon. He used two pieces of half page copy which were exactly alike except that one had a return coupon in the lower right hand corner, the other did not. The observers, 561 in number, were asked which piece of copy they preferred. The idea was to secure the observer's first reaction on seeing the copy. Five hundred and fifty-eight records were obtained, for three of the subjects indicated no preference whatever. The results follow :

	IN FAVOR OF COUPON	NOT IN FAVOR OF COUPON	PERCENTAGE IN FAVOR OF COUPON
			%
435 college men .	277	158	63.6
75 women . . .	41	34	54.6
48 business men .	27	21	56.2
558	345	213	61.8

These results indicate that the copy containing the return coupon was the more pleasing. Since the only difference between them was the presence of the coupon,

it must have been that which added to the pleasantness.¹

These two advertisements were then inserted in magazines so that the actual business efficiency might be determined. The piece of copy without the coupon was run in October, 1912, and the piece with a coupon in May, 1913. Both appeared in the same magazine and both appeared in exactly the same place in the advertising section. These months were chosen because they show quite homogeneous returns for Shryer's business. Whatever advantage there was of a seasonal nature was in favor of the October insertion. The advantage which would come from increased circulation would belong to the May insertion. Roughly, these two would offset each other.

The results obtained by the October half page, which was without the coupon, were 41 inquiries at a cost per inquiry of \$1.83. The May half page, with the coupon, brought 83 inquiries at a cost per inquiry of \$0.90. These results are overwhelmingly in favor of the return coupon, showing that in this test it more than doubled the efficiency of the advertisement. Obviously, we have no right to generalize on the results of one test, but they emphasize the importance of the theoretical considerations given above.

Another example of the efficiency of the return coupon is found in this quotation: "The Padlar People, Ltd., of Oshawa, Ontario, manufacturers of architectural sheet-metal building material, are using a novel coupon in their farm paper advertising, which they claim has practically doubled the inquiries. Briefly, the coupon includes a diagram of the two types of barns common in Canada, with dimension lines, so that the farmer can fill the dimensions and get an estimate from the manufacturer as to the cost of sheathing his barn with steel shingles.

¹ Shryer, W. A., "System," Dec. 1913, pages 582-583.

"In explaining the benefits of the coupon, A. T. Enlow, advertising manager of the concern, says: 'Our long experience with the farmer has convinced us that he will read anything halfway interesting, but he will not go to a great deal of trouble in writing letters. No doubt this is largely due to the fact that his stationery is of an uncertain quality, the ink dried up, and the pen rusted. We figure that by making it easy for him to write in and find out what it would cost to steel shingle his barn we would save him a lot of figuring and at the same time the association of ideas would bring results. As a result we find that we are getting more than twice the number of inquiries from the same space as we did before we adopted this diagram idea.'"¹

A personal letter, received by Scott, further emphasizes the value of the return coupon. The letter omitting names is as follows: "Dear Sir, — I am sending you under separate cover copy of the 'Ballot' advertisement, which we got out recently along the lines suggested by your articles in *Mahin's Magazine*, and are pleased to report that the returns are very satisfactory. Over 50 per cent of the sheets were returned, making a very valuable mailing list, but we do not consider this as important as the psychological value of having the retail dealers make a special request for our monthly price list.

"As a test case, we mailed thirty of these sheets to dealers to whom we had been sending our catalogues and other advertising material regularly for a number of years, but had never received any returns. Of these seventeen were returned, three containing special requests for prices, one of which resulted in an immediate order.

"I find the knowledge of the psychological principles of advertising very helpful in planning my advertising

¹ Starch, "Advertising," page 243.

work, and will be pleased to give you any further data in regard to the results obtained that you may wish.”¹

The long circuit, or reason-why, copy is very different from the short circuit appeal in principle. In the latter, there must be no hint of the existence of any competitors, for that in itself would be a negative suggestion and tend to prevent the action from taking place. In the long circuit appeal comparisons with competing brands are desired, for each advertiser is hypothetically so sure that his product is the best, that the reader of the advertisement must agree with him if the reasons are noticed. The reason-why copy is consequently argumentative and involves reasoning processes.

Reasoning is in psychological terms voluntary thinking, or thinking for a purpose. The starting point of the reasoning process is usually said to be a thwarted purpose. A man desires to do something, or is confronted by a situation for which there are no habitual or instinctive responses. Consequently, something new must be evolved. There are two methods by means of which a satisfactory response may be attained. One, the lower form, is called trial and error. The animal or the human tries one act after another until one is hit upon which proves to be satisfactory. By the other method, the trial and error takes place in the realm of ideas. One idea after another is tried until one is hit upon which seems to meet all the demands of the case. If it is possible to think the process through instead of having actually to try out all the various possibilities, much time is saved. In reality, the whole process reduces to the mechanism of choice, which was outlined in the foregoing pages.

In the advertising situation, the starting point of the reasoning process is an unsatisfied want or need. The man knows that he desires a certain class of commodity,

¹ Scott, "The Theory of Advertising," pages 93-94.

but there are so many different makes on the market that he is not just sure which is the most satisfactory. The arguments for one commodity are known, those for a second, a third, and so on. A given product, A, is in mind, together with a number of reasons for its excellence. Then along comes B with its associations, to be followed in turn by C with its fringe of ideas. Each is weighed and each tends to neutralize the other, but some one of the arguments which is presented will have a greater motive power with the given person than any other and the action will eventually be in terms of that argument. The whole process is a very complex one, and a thorough understanding of it would involve the giving of innumerable examples. In the purchase of an advertised commodity, the considerations which have weight are largely practical. A certain need is felt and the man desires to satisfy the need in as thorough a way as possible, and it may be added that each man's need is slightly or greatly different from any other man's. For example, all typewriting machines will write legibly. A traveling man needs a portable one, a sedentary individual does not. An ordinary correspondence machine is unsatisfactory for bookkeeping, whereas a bookkeeping machine would be of little value to a mathematician, and one devised for the latter would be equally useless to a Greek scholar. But if we assume that different machines are made to satisfy all of these needs, what other points must be considered? Starch gives a list of four, as follows: "First, facts relating to the *raw material* from which the product is made. Second, the facts relating to the *workmanship* in the production of the article. Third, the various *uses* of the commodity. Fourth, the *price* of the article."¹

The Remington Company made use of the raw material argument some years ago by stating that the wooden

¹ Starch, "Advertising," pages 232-233.

levers attached to the keys prevented fatigue. If one had a considerable amount of writing to do, this would be a powerful appeal. The use of ball bearings to reduce friction, and make the action consequently easier, is another of the same nature. The raw material argument may be a strong one if it shows how the material used in the construction makes the machine or article any more suitable for the purpose at hand.

Any peculiarities of construction or workmanship in the production of the article may make a powerful argument. A dust-proof case on the machine will appeal to some. The impossibility of its getting out of alignment will be a strong point with many. The mechanical perfection appeal is likewise strong. Other points which might be taken up are the durability of the machine, the fact that it is noiseless, that it is made of few parts and consequently cannot get out of order, — all of these are excellent arguments of their kind. The uses have already been touched upon, so there is no necessity for going into greater detail.

The price is an important consideration. One may want the more expensive machine, but be absolutely unable to afford it. If it can be definitely, accurately, and convincingly shown that the higher-priced machine will save the difference, that point may make sales.

These points all deal with the end which is to be accomplished, to adopt the phraseology of earlier pages. Anything which will describe the end more fully, make it clearer, more adequate, and more definite will tend to bring about the realization of the end, — in this particular case, the purchase of a machine. As has been pointed out before, this can be accomplished in two ways, or rather in accordance with the remoteness of the end. In the one case, the product may be considered the end, and a graphic description of the commodity in terms of some well-recognized appeal will make the end more

clear and more distinct. In the other case, the benefit which the individual will derive from the use of the commodity may be called the end, and the personal benefit may be pictured in a convincing way. An indication of the relative strength of the two types of end may be obtained from the attention value of the two as was shown on page 145. There it was shown that, on the average, an end of the first type was slightly more powerful. It seems probable, however, that the description of the commodity is used to greater advantage in the competitive type of advertisement, and the pointing out of personal benefit is more appropriate in connection with new and untried articles.

Not only must the end be clearly and forcefully described, no matter what its nature is, but the means of accomplishing the end must also be indicated. In connection with the ordinary advertised article, this would mean information concerning the procuring of the commodity; whether it can be obtained at stores, what kinds of stores, whether it must be written for, and if so, how many stamps, provided any are necessary, are to be sent, and if check, draft, or money order is preferred. The directions for obtaining the commodity should be made so plain and so explicit that there is no possibility for mistake. In this connection, the combination of the short circuit appeal with the reason why is especially fortunate — such a device as the return coupon, for example — for it lessens by a considerable amount the energy which must be expended in carrying out the accomplishment of the means to the end. Some such scheme as this must be employed, or the associations aroused by the copy must have a very considerable amount of motive power to bring about the desired response. The effect is much more easily accomplished, however, by the former — by lessening the amount of energy.

Many commodities which are sold by means of reason-why copy necessitate the purchasing of certain supplies to make them serviceable. An automobile must have tires, gasoline, and oil, a rifle must have cartridges and oil, a kodak must have films; and another consideration which looms large in the purchase of such a commodity is the ease of procuring the necessary supplies. If these can be obtained easily — and they are nothing more than a means to the end of using the object — the object is much more likely to be purchased than when considerable trouble must be taken to supply them.

It seems to be a proper place to go into more detail concerning the various ways of strengthening the motive power of ideas, for in last analysis, the obtaining of action is directly dependent upon the ability of the various ideas to result in movement. In the first place, the motive power of any idea will depend upon the attention which that idea receives. The more concentrated the attention, the more likely is the idea to issue in the form of movement. This refers not to the catching of attention, but the holding of the idea in the focus of consciousness. If an idea is held firmly in the focus of consciousness, to the exclusion of all others, it must result in action. But we have seen that attention can be given to but one thing at a time and to that one thing for only three or four seconds. Different aspects or properties of the same thing may be attended to, however; so continued attention may be attained by mentioning in succession the different ways of regarding the same thing. This is the main reason that but one selling point should be mentioned in one advertisement, for then the reader will be dominated by one idea rather than by many. The relative attention value of the different appeals has already been given on page 145, so may be seen by referring back.

Since it is absolutely necessary that attention be caught

before it be held, some of the objective conditions may be briefly reviewed. It will be recalled that size was one of the conditions. A large object is much more likely to catch attention than a small one, other things being equal. Consequently, sheer size, if it is reënforced by interest incentives as well, is likely to give the idea derived from it more motive power than it would otherwise have. For the large object produces more nerve energy than the small; and, on the average, there will be more of the energy left to produce action. Exactly the same thing is true of intensity, duration, and all the rest of the objective conditions.

The effect of frequency of stimulation depends upon a somewhat different explanation, viz., the wearing down of the resistance in the pathways leading to the sensory and motor centers of the brain; so that there is more of the original energy left to produce movement, as is shown by the following incidents. Strong, in his experiments at Columbia, used 50 Packer's Tar Soap advertisements and had them arranged in order of merit by a number of students. This made a fairly thorough study of the contents of the advertisements necessary. The result was that after the experiment was concluded, a very large percentage of the students used in the test went out and bought Packer's Tar Soap, a brand that they were not in the habit of using. A very similar incident occurred at the University of Michigan. An assistant kept finding all over the laboratory a series of Cuticura advertisements which the writer was using in an experiment. Though she had used Cuticura and given it up, she was so impressed by the frequency with which the advertisements confronted her, that she went and purchased another package.

Another method of producing action is to arouse an emotion. Much loose psychology has been written on the relation between emotion and action, and the state-

A-SKIN-YOU-LOVE-TO-TOUCH

Write today for this picture! See offer below



You, too, can have its charm if you will begin the following treatment tonight:

just before the marriage. Later, you will find that the young Mr. Lincoln's father, Dr. Simeon, was a doctor. Among all the young men with whom he had to do, the young Mr. Lincoln was the one of your kind. His work was not easy, but he was not a man who was always with a pencil and ink, and in the winter, when the weather was cold, he would go barefoot. Finally, by rubbing your feet on the floor, you will find the *padding* of the shoes. The student presidents and the students who were in the school had a marked difference in their minds. A group of them had a group of them. In the case of Webster's, the students were in the same way.

Send now for this beautiful picture

There's nothing like a "See You" calendar to help you keep track of the important dates in your life. It's a handy reminder of the days, weeks, months and years ahead. It's a great way to stay organized and on top of your life. It's a must-have for anyone who wants to stay on top of their life. It's a great way to stay organized and on top of your life. It's a must-have for anyone who wants to stay on top of their life.

The Andrew Jergens Co., 430 Spring Grove Ave., Cincinnati, Ohio.

The Andrew Jergens Co., 430 Spring Grove Ave., Cincinnati, Ohio.

JOHN H. WOODBURY'S

FACIAL SOAP

1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

FIG. XXIII.

ment is frequently found that the emotion is the cause of the action. In the present unsettled state of the theories concerning emotion, it is probably impossible to decide absolutely that this statement is incorrect. As a matter of fact, it makes no difference whether the emotion is the cause of the action, or the action the cause of the emotion, as the James-Lange theory and the Dewey theory insist, for both the action and the emotion are the result of the stimulus; and when we find a strong emotion present, we usually find it accompanied by a considerable amount of action. Conversely, when we find a large amount of action, we likewise discover a considerable degree of emotion. It is not necessary to state, then, that either is cause. They both result from the same stimulus, and usually the condition which produces one produces the other. The emotion on its content side represents merely a piling up of consciousness or an intensification of consciousness. Consequently, the idea or sensation which gives rise to the emotion comes under the general category of intensity, the only difference being that it represents a subjective intensity rather than objective. At any rate, there is a large amount of nerve current in the cortex which must eventually pass over into the motor region.

Closely connected with this principle is the fact that an image or sensation derived from the contact or internal senses is much more likely to be emotionally toned than one derived from the distance senses. Since, in advertising, the initial appeal is through the distance senses, some endeavor should be made to include, either in the copy or the picture, some suggestion which will arouse either a contact or an internal image. This was done very cleverly in the accompanying Woodbury's Facial Soap advertisement, Fig. XXIII. The situation calls out the sex instinct with its accompanying powerful emotion.

The words which are employed and the sentence structure which is used are both important elements. It may dogmatically be said that short and simple words should be used in advertising copy, for it is necessary to arouse a clear and distinct image. This can only be done by words which are familiar to the reader. The short words of Anglo-Saxon origin are more familiar than their longer synonyms and have more "punch" behind them. They do not adapt themselves so readily to a smooth flowing style, but are better in conveying a definite impression to the average person.

As has been pointed out by Hollingworth,¹ there is a direct relation between the span of attention and the make-up of a sentence which is easily apprehended. It has been said that we could grasp four or five things mentally at one time. Consequently, it may be argued that a sentence to be easily grasped should contain from three to five phrases of three to five words each.

The long circuit appeal and the short circuit appeal have been treated so far as if they were absolutely distinct. They may of course be made so, but the average advertisement is neither all short circuit nor all long circuit, but a mixture of the two. Even with the best reason-why copy in the world, the action which results from it must be of the ideo-motor or sensori-motor sort. For once the competing ideas are eliminated, there is only the conquering idea left and its expression must follow the ideo-motor principle. Most advertisements are a mixture of the two types of appeal, and they are ranked in one class or the other as they tend to emphasize that kind of appeal.

As has been already stated, anything which will tend to give an idea a greater motive power will be advantageous to either type, and the same general principles that will work in one case will work in the other to give

¹ Hollingworth, "Advertising and Selling," pages 58-59.

the ideas and sensations greater power to produce movement.

The question of when the long circuit and when the short circuit appeal should be used is of some importance. Obviously, because the short circuit appeal asks us to do nothing which is new, since it depends for its strength upon the tapping of instincts and habits which are already formed, it should be used with commodities which are familiar. Put the other way around, it may be used to influence us to perform any instinctive or habitual act, but it cannot compel us to go against our habits and instincts. Among the strongest of the instincts is the seeking of food, so food advertisements might well be of this sort. If cleanliness is an instinct, as it is often asserted to be, soap appeals might well be based upon suggestion and imitation. Objects of decoration, and as far as clothing the body is based upon the instinct to decorate, clothing, except for utilitarian reasons, may be based upon this type of appeal. Objects promoting comfort, health, bodily safety, etc., may also be satisfactorily advertised by short circuit appeals. Objects which satisfy some whim of the individual may likewise be grouped under this general heading.

From another standpoint, any article which is inexpensive may be advertised by the short circuit route, for the appeal will not then arouse ideas of economy. Most of us have formed habits of expenditure; we know how much we can spend for this, that, and the other product, and where the cost is trifling the contrary notion of economy does not step in and prevent the action. With more expensive articles, however, the economy idea is pretty universally present, and as an idea, is sufficiently strong to prevent the expression of the buying idea.

The long circuit appeal or the reason-why copy, on the other hand, should be used with expensive commodities

the purchase of which has not become a definite habit. It is necessary that the economy tendency be driven out by a stronger idea that action may eventuate. In fact, the long circuit appeal may be used for all of those articles which are opposite in character to those which can be successfully appealed to by the short circuit method. Anything then which is impersonal, useful as an end, and not for itself, and especially for articles which partake of the nature of a tool, those things which are simply the means to a more or less remote end, may be advertised by the long circuit route.

CHAPTER XV

SEX DIFFERENCES

It has been stated in an earlier chapter that the occupation of the individual determined the peculiarities of his mind. Since the occupations of men and women have become so diverse in the history of the race, we might expect to see this difference reflected in the make-up of their minds. Because of this standpoint, many investigations have been carried on to determine the mental sex differences. Surprisingly enough, few real ones have been found. This is owing, very largely, to the fact that occupational variations were not used as the basis in devising the tests which were employed. Since the advertising situation is one in which the previous training and occupation of the individual play an important rôle, the sex differences which have been determined probably represent a truth which should be invaluable to the advertiser. Many commodities are strictly women's propositions; and the advertiser, to secure the largest returns, should know the foibles of the sex and base his campaign upon that knowledge. For the sake of making them easy of access, the sex differences which have been determined by the experiments quoted will be summarized.

In catching the attention, size was found to be a more important factor with women than with men. Men, on the other hand, are more likely to attend with more nearly equal vigor to successive presentations of the same object. Men are more likely to see blue than women,

whereas women are more likely to have their attention attracted by red than men. Men's attention is more likely to be caught by pictures than women's.

Women's attention is much more likely to be held by personal appeals. They appear also to be more influenced by appeals to ambition, making money in leisure moments, and the like. They are, too, likely to be caught by "bargain" and "cheap" appeals, whereas the men are much more interested in "special sales." Women apparently have more pride, both for themselves and for the political and social groups of which they are a part. Men, on the other hand, are more influenced by appeals which concern their industrial and occupational groups, such as a union. They are also interested more than the women by the recommendations of persons in authority, and the indirect argument flatters them by appealing to their intelligence. Man's greater knowledge of business conditions assures him of the worth of goods which are turned out by old firms, by rapidly growing firms, and the like.

Women have better memories than men for observed events, but different factors influence their memories differently. Men are more likely to remember large advertisements, women, frequently repeated advertisements just reversing the conditions found to hold in attention. Women remember pictures in advertisements better than men, but the men remember the trade name better than the women. In fact, the women are likely to remember the picture better than anything else in the advertisement. Women are more likely than men to remember material which is presented in three-part rhythms, while men are more apt than women to recall data which are presented in two-part rhythms. With the three-part rhythms, men are more affected by the falling measures, women by the rising.

It is commonly supposed that women are more emo-

tional than men, though this is apparently a mere impression. As far as experimental evidence goes, there is little to be said for or against the statement. The tests on color preference showed that women are likely to prefer red, men blue, though there are many exceptions. Women like tints better than do the men, whereas men prefer saturated colors and shades. Women, likewise, are fonder than men of pictures.

On the motor side, it has been stated that women are more suggestible than men. This was determined by asking a group of both sexes to copy a script document. It was found that the women tended to imitate the handwriting in the model to a greater extent than the men. There is some slight experimental evidence for the statement that men are more logical than women and would therefore be more likely to enjoy having their reason appealed to. If such is the case, women would be more likely to be persuaded by short circuit appeals and men by the long circuit advertisements.

In general, it may be said that women are more homogeneous than men, showing less variability, and tending to resemble each other more closely. Another related difference is brought out by Hollingworth.¹ He says, "Men agree more closely in their preferences and women are more alike in their dislikes."

¹ Hollingworth, *Psy. Rev.*, Vol. 18, page 256.

CHAPTER XVI

RESULTS OBTAINED IN ADVERTISING

IN the foregoing chapters, psychological principles have been discussed, and certain general laws have been pointed out. It is necessary now to give the results obtainable from the actual practice of advertising and to show such relations as exist between the theory and practice. It is extremely regrettable that so few actual returns from advertising campaigns can be obtained. The writer has succeeded in getting the results of a few from the advertising literature and from correspondence with the heads of several of the large advertising departments of concerns which carry on national advertising.

It is of course probable that different commodities will demand different advertising, so the opinions of some of the experts are somewhat contradictory. This is to be expected, and instead of making the testimony less valuable, it increases its worth very considerably.

1. *Size of Advertisements.* — Exact information concerning the effect of the size of advertisements has been obtained from three sources: one a series of mail order propositions, a second from the sale of cattle, and third from a toilet article concern. Expressions of opinion have been received from various other sources. These will now be taken up in detail.

The first set of records was obtained from Shryer.¹ He gives two sets of figures, the first obtained from a four years' record of mediums in general, the other from

¹ Shryer, W. A., "Analytical Advertising," pages 171-175, 190.

the advertisements which were carried in *System*. Beginning with the quarter page in both cases, for nothing smaller has been consistently used in the experiments which have been described, his figures are as follows :

SIZE OF ADVERTISEMENT	INSERTIONS	INQUIRIES	INQUIRIES PER INSERTION
$\frac{1}{4}$ page	99	2766	28.0
$\frac{1}{2}$ page	60	2458	41.0
Full page	69	4296	62.3

If the inquiries per insertion are taken and reduced to ratios to make them comparable with other results, the following is obtained :

SIZE OF ADVERTISEMENT RATIO OF INQUIRIES

$\frac{1}{4}$ page	1.00
$\frac{1}{2}$ page	1.46
Full page	2.23

The results obtained from the advertisements in *System* are treated in the same way.

SIZE OF ADVERTISEMENT	INSERTIONS	INQUIRIES	INQUIRIES PER INSERTION
$\frac{1}{4}$ page	10	680	68.0
$\frac{1}{2}$ page	19	2076	109.0
Full page	22	3385	154.0
3 page	3	850	283.0

TABLE OF RATIOS

SIZE OF AD	RATIO OF INQUIRIES
$\frac{1}{4}$ page	1.00
$\frac{1}{2}$ page	1.60
Full page	2.27
3 page	4.17

Averaging the results of these two sets of figures, the following is obtained :

	$\frac{1}{2}$ PAGE	$\frac{1}{2}$ PAGE	FULL PAGE	3 PAGE
First set	1.00	1.46	2.23	
Second set	1.00	1.60	2.27	4.17
Average	1.00	1.53	2.25	4.17

These figures, which may be plotted graphically, show that the efficiency of the size of the mail order advertisements which were quoted by Shryer varies approximately as the 1.73 root of the size of the advertisement.

The next set of actual returns is taken from Starch.¹ He says, "A. H. Kuhlmann made a study of the relation between the number of sales of pure bred cattle and the amount of space used in the agricultural papers to effect their sale. This study is particularly important because it was possible to tabulate not only the amount of advertising space used, but also the exact number of sales made. The latter was determined from the registers and transfers of pure bred stock." A modification of the table presented by Starch is given showing the number of column inches of advertising used and the number of sales made during each six months from 1900 to 1907:

YEAR	JAN. TO JUNE		JULY TO DEC.	
	Advert.	Sales	Advert.	Sales
1900	118.0	63	245.0	30
1901	246.0	48	262.2	25
1902	326.0	97	292.0	105
1903	326.0	82	327.0	108
1904	347.0	107	390.0	90
1905	599.5	171	397.5	188
1906	427.5	161	361.0	137
1907	537.0	254	492.0	195

¹ Starch, "Advertising," pages 49-50.

If these results are taken and the figures between 100 and 200 representing advertising space are averaged and the sales belonging to them are likewise averaged, then the advertising space between 200 and 300 column inches is averaged in the same way, and so on for all the various sizes and the sales resulting from those sizes, the following relations are found to exist:

ADVERTISING	SALES
inches	
211	52
353	116
459	178
568	212

Putting this into ratios, the following result is obtained:

ADVERTISING	SALES
1.00	1.00
1.67	2.23
2.26	3.42
2.70	4.08

These results show that the effect of increasing the space used in advertising varies directly as the 1.5 power of the amount of space which is used. This figure is approximate only. The relation between amount of space and returns is quite different from that obtained from the mail order advertisements. This is only natural when the differences in the type of commodity sold are considered.

The results of the various effects of size will now be considered. Data have been obtained concerning the attention value of size, the memory value of size, and the increased returns which come from increasing the size of advertisements. The ratios resulting from these are thrown together in the following table for purposes of comparison:

	UNITS OF SIZE		
	1	2	4
Attention	1.00	1.67	2.05
Memory	1.00	1.51	2.26
Returns, mail order	1.00	1.53	2.25

2. *Frequency of Insertion.* — Data bearing upon the effect of subsequent advertisements of the same commodity have been likewise obtained from Shryer.¹ He gives, in these pages, the results from the advertising campaigns of four different concerns. Since the results obtained from these mail order propositions show so little difference, they are grouped together and simply the average results taken. The number of inquiries received from the first, second, and so on up to the seventh insertion of the advertisement, are given. Since both the number of insertions of the advertisements and the resulting number of inquiries were so irregular, they were all reduced to ratios and the ratios averaged. The records for classified advertisements were not considered, for it is generally admitted that there is a considerable difference in the attitude which persons take towards the two kinds, classified and display, the former appealing primarily to those who are already interested in the proposition.

In working out the results, the writer has added together the records of consecutive insertions of the advertisements, thus showing the total number of inquiries pulled by the first insertion alone, by the first two, the first three, etc. The figures, reduced to ratios, follow:

¹ Shryer, W. A., "Analytical Advertising," pages 82-114.

	NUMBER OF INSERTIONS						
	1	2	3	4	5	6	7
Inquiries	1.00	2.01	3.03	4.33	5.23	6.58	7.84

These figures are to a certain extent untrustworthy and misleading, for out of the thirty or more tables from which they were derived, fully half contained too few figures to be entirely dependable. The 16 tables which contained 100 inquiries or more for the first insertion were considered apart, for it was thought that the greater the number of inquiries, the less effect some slight accidental variation would have. The table made up by these ratios follows :

	NUMBER OF INSERTIONS						
	1	2	3	4	5	6	7
Inquiries	1.00	2.08	2.78	3.46	4.20	5.64	6.28

Comparing these results with those obtained from the experiments on the effect of frequency of repetition on attention and memory, the following is obtained :

	NUMBER OF PRESENTATIONS		
	1	2	4
Attention	1.00	1.96	3.36
Memory	1.00	2.06	3.32
Returns	1.00	2.08	3.46

It will be seen once more that the relation between the general tendencies as determined in the laboratory and the results from mail order propositions such as those listed by Shryer is very close indeed, being in general below the error of observation.

3. Certain other relations between the general principles which have been postulated as a result of experiments in psychological laboratories and returns from actual advertisements are to be obtained from an article by Hollingworth.¹ Ninety-nine advertisements were sent to him for psychological analysis. Each one of the advertisements was definitely known or supposed to have been unusually successful. A complete analysis would have been an endless task, so he contented himself with the consideration of several main points.

A. One question which was taken up was the means used to catch the reader's attention. It will be recalled that there are two main ways of doing this: first by means of mechanical incentives, such devices as intensity, size, and the like, the result of which is to flood the cortex with nervous energy, thereby compelling attention; the second by means of interest incentives, those things which will meet with ready reception in consciousness because of our past training and heredity.

Hollingworth found that the number of advertisements depending upon the different incentives were as follows:

Mainly on mechanical devices	34
Mainly in interest incentives	44
Mixed or intermediate	21

B. A second question was the means employed to keep the attention, once it had been caught. One of the means for doing this is by making the impression produced by the advertisement pleasant. Classified on this basis, the following table resulted:

¹ Hollingworth, *Advertising and Selling*, August, 1915, page 19.

Distinctly agreeable feeling tone . . .	51
Distinctly disagreeable feeling tone . .	11
Indifferent feeling tone	37

1. A second method of holding the attention of the reader of the advertisement was shown to be the type of selling point which was made. Some would prove to be interesting, others would not. The results of the experiment on the 50 abstract appeals were grouped under 7 main heads with several subheads. The advertisements were ranked by Hollingworth as they came under each of these heads. Changing his figures around to make them correspond with our classification, the following table results, showing the relations between the laboratory test and the effective advertisements:

SELLING POINT		LAB. TEST	AD. CONTEST
I.	A.	1	1
III.	A.	2	*
V.		3	10.5
II.	A.	4	3
II.	B.	5	5
I.	C.	6	6
III.	B.	7	10.5
II.	C.	8	7
VI.		9	2
I.	B.	10	4
III.	C.	11	10.5
I.	D.	12	8
II.	D.	13	10.5
IV.		14	*

With three exceptions, the results agree very well indeed.

C. A third point is in connection with memory. It is a psychological principle that anything which is logically put, which hangs together as a whole, or which is unified, is more easily remembered than something which is

not. It is the essential difference between logical and rote learning. Classified on this basis, the 99 advertisements were grouped as follows:

Well or fairly well unified	53
Indifferently unified	35
Wretchedly unified	11

D. In connection with the action producing possibilities of the advertisement, two things should be considered: the short circuit or the long circuit appeal. Classified on this basis, the advertisements were grouped as follows:

Long circuit, or reason-why copy	63
Short circuit, or human nature copy	17
Mixed or intermediate	19

Hollingworth says: "Obviously these successful advertisements have made their major appeal to the intelligence, the calm, deliberate reflection, of the readers. They have on the whole not been satisfied with bare and unsupported assertions, nor have they made merely a sentimental and emotional appeal. How far this tendency has been determined by the character of the products advertised it is difficult to say. There are certain types of commodities for which the short circuit appeal is especially appropriate. But taking these products as a total group, the greater proportion of them have not used this type of appeal."

E. Hollingworth has discovered a third type of appeal among the 99 advertisements which he calls "*Rationalization Copy*." He says concerning them,¹ "Thirty of these 99 advertisements constitute an interesting group by themselves. They are what I may call, for want of a better term, 'rationalization' copy. One of the striking tendencies of human beings is to act, judge,

¹ Hollingworth, *Advertising and Selling*, August, 1915.

believe, or vote on strictly instinctive, emotional grounds, and then, after the act is committed, to try to justify or defend it by intellectual and logical reasons. First of all we believe in immortality, just because we feel like it, want it, or have an instinctive yearning for it. Then having formulated our belief, on these purely non-rational grounds, we search and search for arguments which we can give to our neighbors in justification of our belief. We would like them to think that we ourselves believe on the grounds of logical arguments. But in our heart of hearts we know that we first believed and only when our belief was challenged did we search for logical proofs or reasons. Men buy automobiles in the same way. I buy my car because my neighbor has one, because it is the fashion to have one, because of my pride, my jealousy, my vanity. Then, having bought the car I look about for logical justifications which I can give for my conduct. 'It saves time,' 'It entertains the family,' 'It gives us needed relaxation,' 'It saves car fare,' etc. etc.

"Now the advertising man is beginning to understand this human tendency and at least 30 of these 99 advertisements begin with a distinctly emotional, short circuit appeal, thus persuading and seducing the reader. Then the ad-writer hastens to add a series of logical reasons, which probably exert but little influence on the prospect's own decision, but they fortify him against the objections of his mother-in-law, his employer, his banker, and his conscience. This is a distinct type of advertisement which is coming more and more into prominence, and it takes advantage, in a very clever way, of the rationalizing tendency of all of us."

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